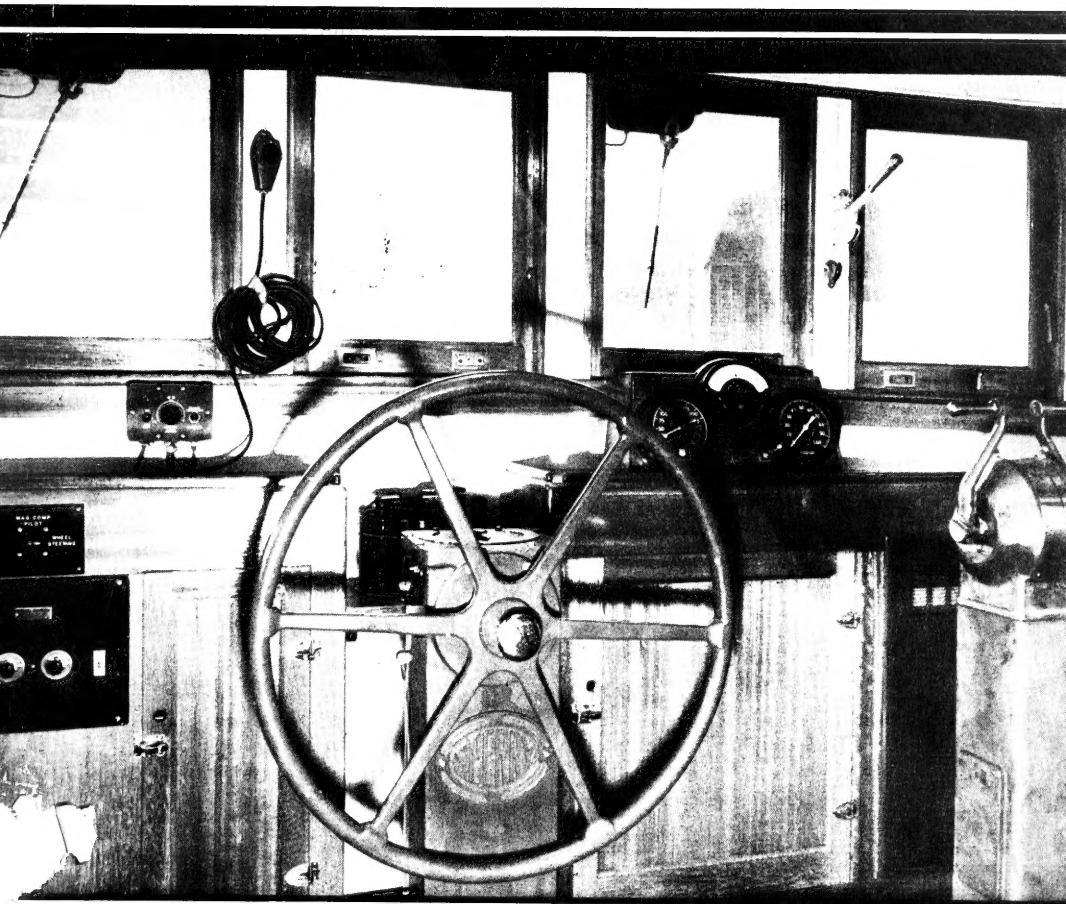


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COMMERCIAL FISHERIES REVIEW



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES
PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

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DESCRIPTION OF THE EXPLORATORY FISHING VESSEL JOHN N. COBB

By J. G. Ellison*

INTRODUCTION

In order to explore the untapped fishery resources in the waters off the Pacific Northwest and Alaska, the U. S. Fish and Wildlife Service added the John N. Cobb to its fleet. This latest and newest exploratory fishing vessel was commissioned

at the Department of Oceanography Dock of the University of Washington at Seattle, Washington, on February 18, 1950. Immediately following the commissioning ceremonies, an open house was held aboard the vessel and many interested scientific and industry people had an opportunity to examine the vessel.

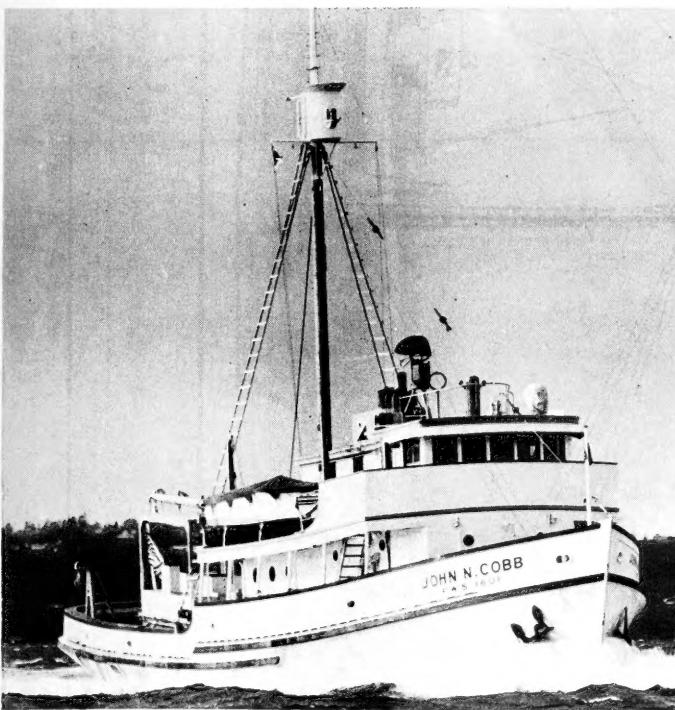


FIGURE 1 - THE JOHN N. COBB ON A TRIAL RUN ON PUGET SOUND.

service's Branch of Commercial Fisheries, the vessel is, at first, placing emphasis on locating commercial concentrations of albacore tuna; determining their pattern of abundance.

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The John N. Cobb, an entirely new vessel, was designed according to the Service's specifications by W. C. Nickum and Sons, Naval Architects, Seattle, Washington. Built at Tacoma, Washington, by the Western Boat Building Company, it was launched on January 14, 1950.

Operated by the Exploratory Fishing and Gear Development Section under the Ser-

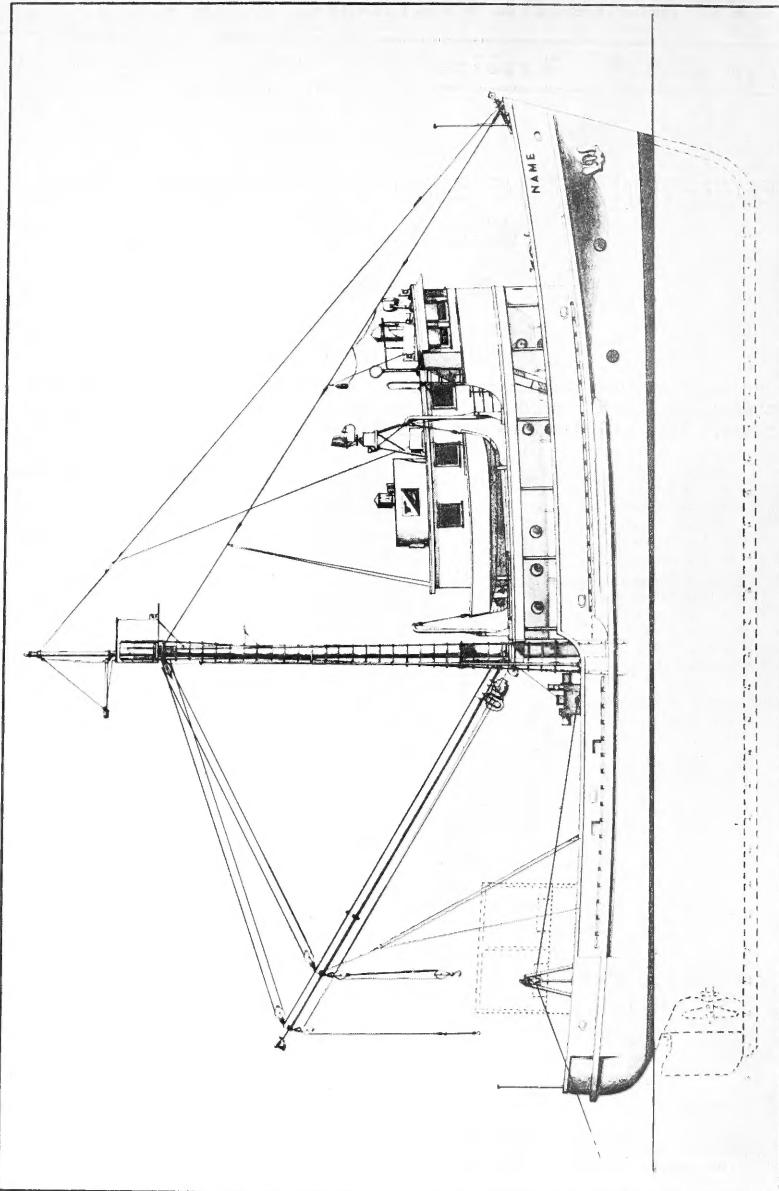
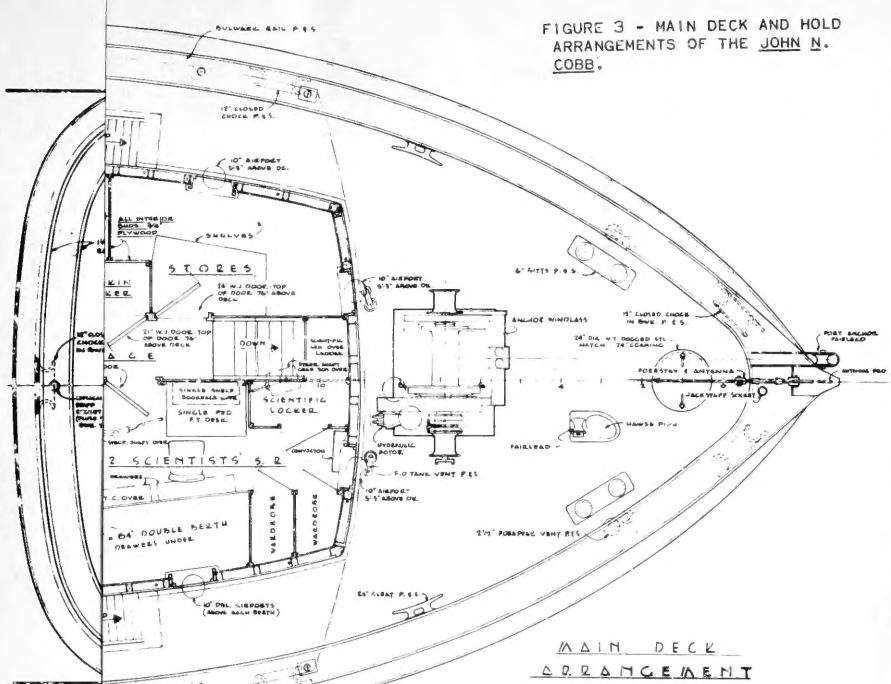
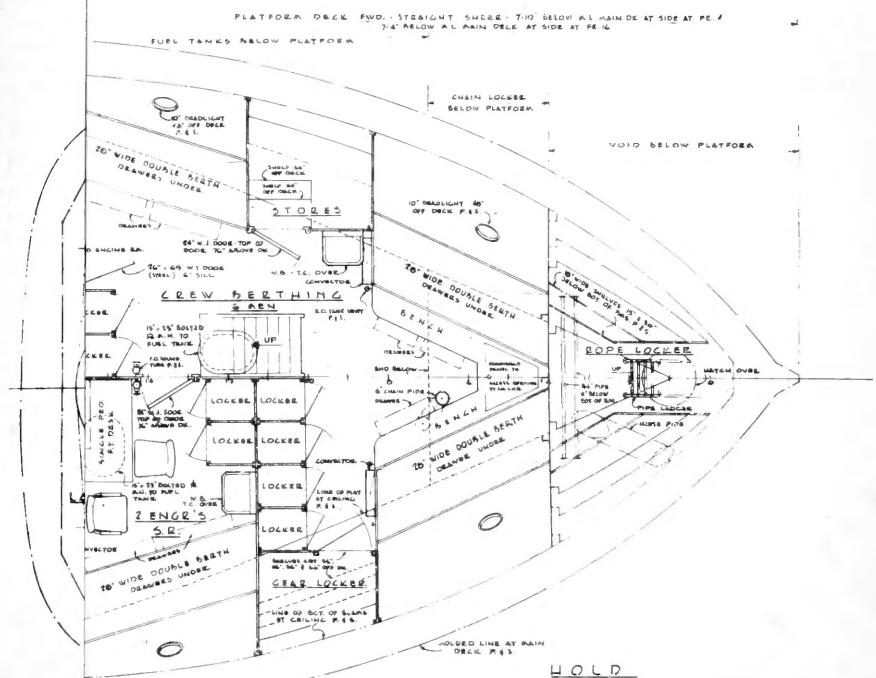


FIGURE 2 - OUTBOARD PROFILE OF THE JOHN N. COBB

FIGURE 3 - MAIN DECK AND HOLD ARRANGEMENTS OF THE JOHN N. COBB.



MAIN DECK
ARRANGEMENT



HOLD
ARRANGEMENT

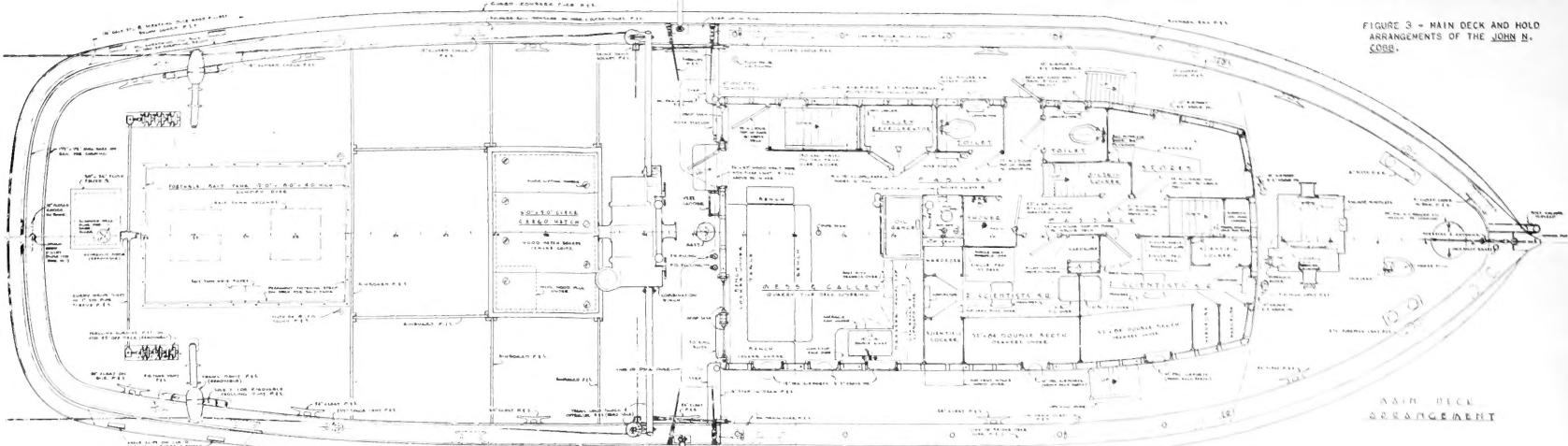
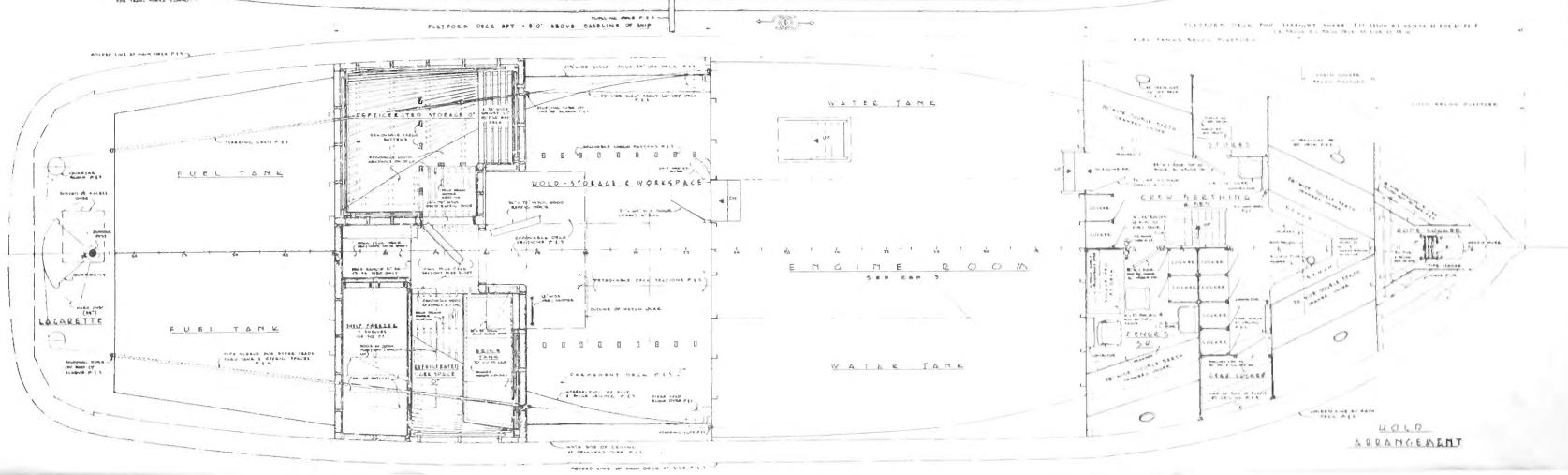


FIGURE 3 - MAIN DECK AND HOLD ARRANGEMENTS OF THE JOHN N. CORB.



dance; tracing their general migration in the waters off Oregon, Washington, and Southeastern Alaska; and determining the most effective means of capturing the tuna commercially. This phase of the work of the Exploratory Fishing and Gear Development Section will be known as the North Pacific Exploratory Fishery Program.

The vessel bears the name of a distinguished leader in the field of fisheries research and knowledge--John N. Cobb. He was the founder and first dean of the School of Fisheries at the University of Washington, as well as having had an outstanding record in the fisheries industry and with the Bureau of Fisheries.

The planning of the John N. Cobb was based largely on practical experience gained from previous exploratory cruises made with other vessels to various areas from the Washington coast to the remote northern areas of the Bering Sea. The vessel is planned as a multi-purpose fishing vessel, to fish experimentally in the various types of fishing found on the West Coast. These include seining, trawling, long-line fishing, live-bait fishing, and trolling. Range of operations for the vessel will extend from the Pacific coastal and offshore waters of the United States to the northern Bering Sea. For this reason, the John N. Cobb is strongly built; is designed to carry large amounts of fuel and water; is equipped with the most modern navigational devices; carries the latest type of life-saving equipment; and is amply powered.

DESCRIPTION OF VESSEL

The vessel's construction is of wood, with the exception of certain steel bulkheads, engine foundations, and tanks. The general design of the vessel is that of a West Coast purse-seiner with certain modifications to improve sea characteristics. For example, the house structure and machinery spaces are located somewhat further aft than in conventional seine boats; also the stern has been made elliptical with the stern lines below the deck shaped so as to avoid the flat, broad type of seine-boat stern. The hold is divided into compartments by steel watertight bulkheads forward and aft of the engine room, forward of the forecastle crew's quarters, and at the afterend of the hold.

The vessel is built to the following dimensions:

Length over-all	93' 5 $\frac{1}{4}$ "	Draft over keel (mean load)	9' 6"
Length, waterline	85' 0 "	Bunkers, Diesel fuel.....	12,000 gals.
Beam over guards	25' 6 $\frac{3}{4}$ "	Capacity, fresh water	6,000 gals.
Beam, molded.....	24' 6 "	Cruising speed	10 knots
Depth, molded	12' 7 "	Maximum speed.....	10.8 knots
Draft, molded (mean load). .	8' 6 "		

The main propulsive power is supplied by an 8-cylinder, 2-cycle, Diesel engine furnishing 345 h.p. at 375 r.p.m. Since the engine is normally rated at 500 h.p. and 540 r.p.m., long life and a minimum of maintenance is expected. There are 2 auxiliary, 3-cylinder, 45 h.p., Diesel generators, each of which supplies 30 kw. for the electrical systems. One auxiliary has the dual function of running a generator or of driving the main trawl winch through a hydraulic torque converter. The other unit is the primary source of electrical power and also has the function of driving a hydraulic pump for operation of the anchor windlass and the trolling gurdies.

A unique feature of the vessel is an auxiliary drive to supply main propulsive power at slow speeds.^{1/} Such is made possible by a sailing clutch which allows the

^{1/} SEE COMMERCIAL FISHERIES REVIEW, JUNE 1950, PP. 1-3; ALSO ISSUED AS SEPARATE NO. 253.

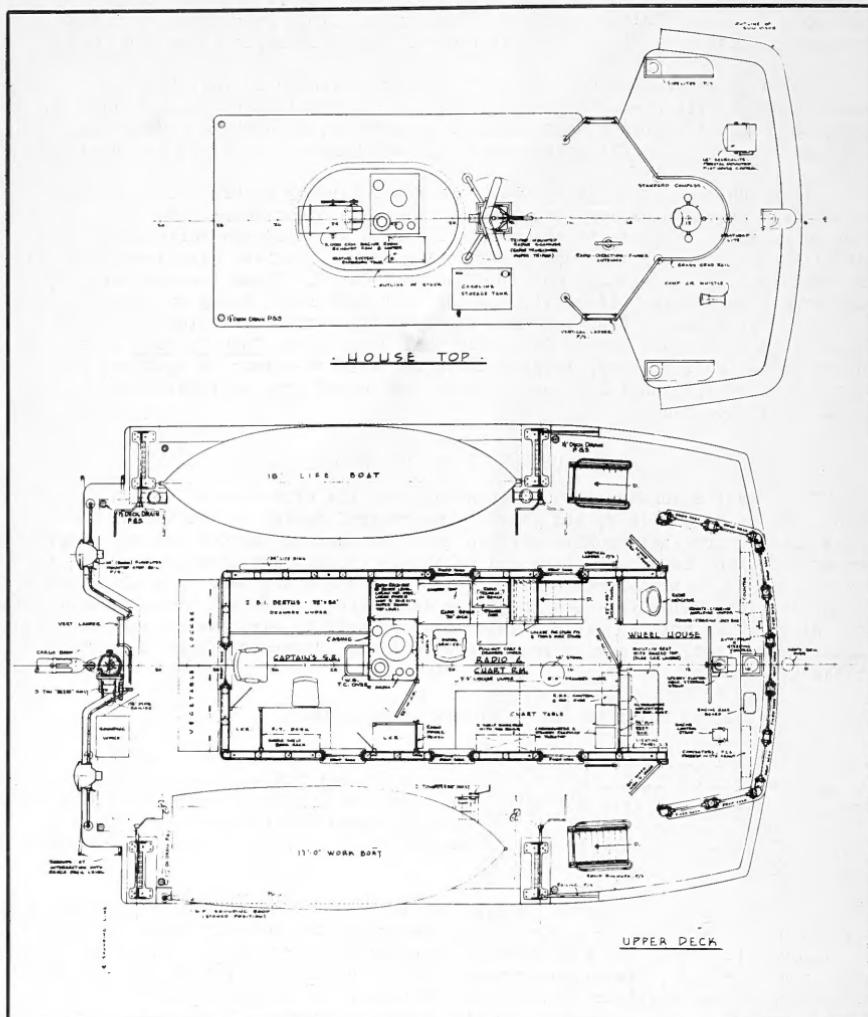


FIGURE 4 - HOUSE TOP AND UPPER DECK ARRANGEMENTS OF THE JOHN N. COBB.

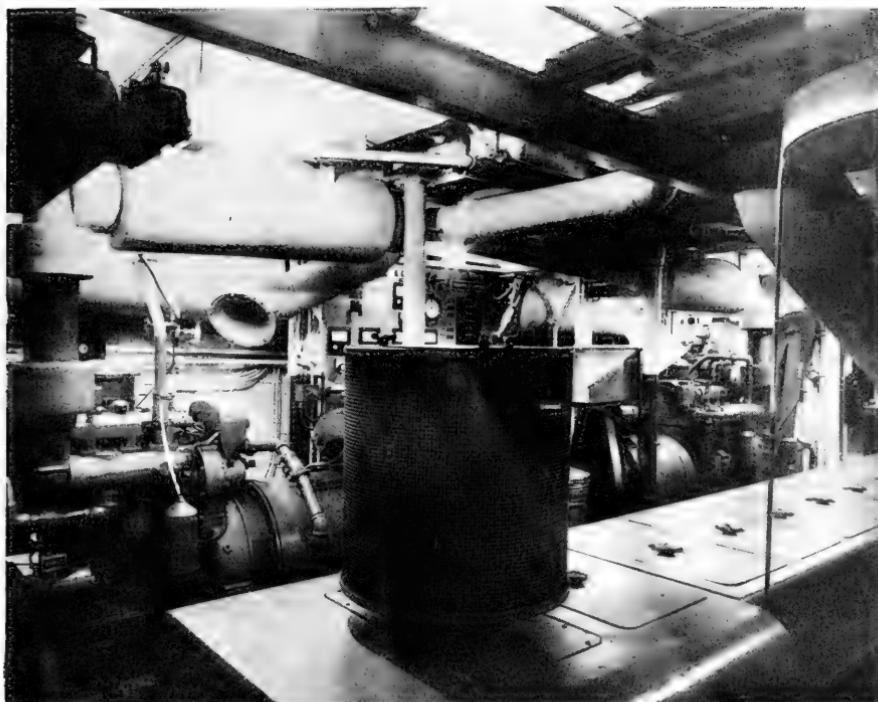


FIGURE 5 - VIEW OF THE JOHN N. COBB'S ENGINE ROOM. IN THE FOREGROUND CAN BE SEEN PART OF THE MAIN DIESEL ENGINE. TWO DIESEL AUXILIARIES ARE SEEN IN THE BACKGROUND.

main engine to be disengaged from the main drive shaft. Power is taken off the winch drive by means of a chain drive to a reduction gear which in turn is connected by a chain drive to a sprocket on the propulsion shafting. This produces variable low-vessel speeds ranging from 0 to about 3 knots, which is valuable for certain fishing operations requiring low speeds. Also, in case of main-engine breakdown, auxiliary means are available to make port for repairs. Equipped with -20° F. sharp-freezing facilities, 0° F. storage, and 1 refrigerated brine well, the vessel can stow in the hold under refrigeration approximately 50,000 pounds of frozen fish. A larger capacity was not deemed necessary for experimental work. Deck machinery, in addition to the main trawl winch which spools 500 fathoms of $5/8"$ wire, includes a hydraulic-powered anchor windlass, an electric-powered oceanographic winch on the topside (reeling 50 fathoms of $3/32"$ wire per minute), an electric boom winch, and hydraulic-powered trolling gurdies. The trawl winch is equipped also for seining and long-line fishing.

The John N. Cobb is rigged with various types of specialized fishing equipment which are readily portable. Among these are trolling poles, a bait tank,

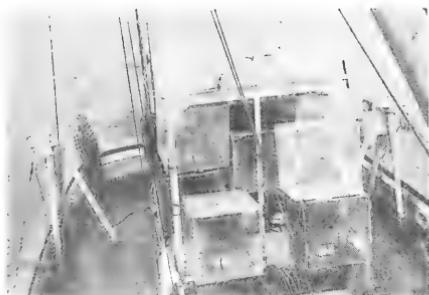


FIGURE 6 - VIEW OF AFTERDECK DURING SHRIMP FISHING OPERATIONS (SEE COMMERCIAL FISHERIES REVIEW, MAY 1950, PP. 33-4). THE GALLONS FRAMES AND TRAWL WARPS ARE SHOWN, AS IS THE CANOPY STRUCTURE OVER THE BAIT TANK. SHRIMP TRAPS HIDE THE BAIT TANK.

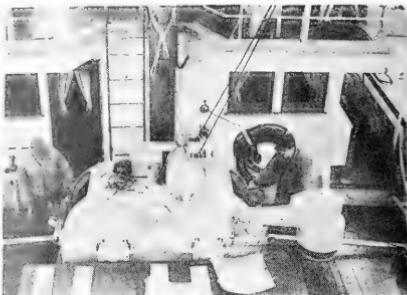


FIGURE 7 - MAIN FISHING WINCH. NOTE THE LARGE SHEAVE AT RIGHT FOR HAULING LONG-LINE GEAR.

and the gallows frames, as well as a 17-foot motor launch, complete with a stern roller, for work in shallow water, and an 18-foot conventional lifeboat.



FIGURE 8 - PILOTHOUSE LOOKING AFT. NOTE THE TWO SONIC DEPTH INDICATORS, THE INTER-COMMUNICATING EQUIPMENT, SURFACE SEA TEMPERATURE RECORDER, AND THE RADAR INSTALLATION.

The vessel is also outfitted with instruments and equipment for oceanographic purposes, which include bathythermographs, bottom-sampling devices, reversing-type



FIGURE 9 - VIEW OF CHART ROOM, SHOWING LORAN RECEIVER, 150 W. RADIO TRANSMITTER AND RECEIVER, RADAR TRANSCIEVER, AND PORTION OF LARGE CHART TABLE. THE SPACE OPENING AT THE REAR SHOWS PART OF THE ADJOINING STATEROOM.

deep-sea thermometers, and plankton nets. A small laboratory space, with a sink, is provided in the hold for work in connection with freezing and processing.

Electronic equipment found aboard includes the following:

Sonic depth recorder, audible signal
Radio telephone, 150 watt
Radio direction finder
Radar

Sonic depth recorder, recording type
Radio telephone, standby, 65 watt
Loran receiver

Steering is by means of an electric-mechanical system complete with automatic steering. Trials have clearly shown the remarkable maneuverability of the vessel. An unusually large combination chart and instrument room has been provided because of the special need for these facilities aboard.

Facilities for scientific personnel have been furnished. Two staterooms, for scientific personnel--each has two bunks, and is equipped with desk, shelf, and locker space for scientific instruments. The captain and mate share a stateroom on the topside, while the chief and assistant engineers share one below. The forecastle space is roomy and comfortable, accommodating six men.

The John N. Cobb completed its first fishing trip to southeastern Alaska on April 14 this year; and left on June 12 on a search for albacore tuna in Pacific Coast and Alaskan waters, a continuation of a project started last year. (See Commercial Fisheries Review, May 1950, pp. 33-34; June 1950, p. 21; July, 1950, pp. 25-26; August 1950, p. 18.)



"S.S. PACIFIC EXPLORER"

PART V - 1948 OPERATIONS IN THE NORTH PACIFIC AND BERING SEA

Early in 1940, the President requested the Secretary of the Interior to investigate the possibility of establishing an American king crab industry in Alaskan waters. In June 1940, a special appropriation was approved by Congress authorizing the Fish and Wildlife Service to conduct a technical, economic and biological investigation of the king crab fishery off the coast of Alaska. A year later funds were provided to continue crab fishing experiments during the summer and fall months of 1941.

The investigation established that there was a large king crab population in the Bering Sea and that lesser but commercially exploitable quantities of crab were to be found on the south side of the Alaska peninsula in Pavlof and Canoe Bays, around Kodiak Island and in certain locations in Cook Inlet. This investigation disclosed that commercial catches could be made and an outstanding opportunity existed for the development of a king crab industry in the Bering Sea. Large quantities of bottom fish were found which indicated that a floating factory ship or shore-based operation should be so designed as to provide for the utilization of these, as well as crabs, and of scrap resulting from processing operations.

The Pacific Explorer, an American factory ship, was a development resulting from the need for additional sources of protein foods during wartime. The 1940 and 1941 Bering Sea and North Pacific explorations of the Fish and Wildlife Service showed that possibilities of commercial exploitation of these fisheries could provide large supplies of fishery products to help meet these needs. In 1945, therefore, the War Food Administration recommended that the Defense Plants Corporation, a subsidiary of the Reconstruction Finance Corporation, obtain and convert a sea-going vessel to a factory ship in order to increase available food supplies for the war effort. When hostilities ceased, the conversion of the vessel had not yet been completed, due primarily to material and equipment shortages. It was decided, however, that it would be to the advantage of the country and its fishing industry to complete the vessel and proceed with its use as a factory ship to extend the scope of American fishing activities.

Facilities of the Pacific Explorer were primarily designed to prepare products from king crabs and bottom fish in the Bering Sea. It was also conceived that a secondary activity would be the freezing and transporting of tuna from southern waters during the winter months when the Bering Sea can not be fished.

SALMON CANNERY TRIMMINGS

PART I - RELATIVE AMOUNTS OF SEPARATED PARTS

By H. W. Magnusson* and W. H. Hagevig **

ABSTRACT

DATA ARE PRESENTED ON THE RELATIVE AMOUNTS OF SEPARATED PARTS (HEADS AND COLLARS, HEARTS, MISCELLANEOUS FINS, TAILS, LIVERS, EGGS, MILT, AND DIGESTIVE TRACTS) WHICH CAN BE RECOVERED FROM THE STANDARD CANNERY BUTCHERING AND TRIMMING EQUIPMENT FOR EACH OF THE FIVE SPECIES OF SALMON, NAMELY, PINK, RED, CHUM, SILVER, AND KING.

INTRODUCTION

Every year nearly 100 million pounds of salmon trimmings, a potential source of animal food, vitamins, amino acids, sterols, and other valuable biochemicals, are discarded by the Alaskan salmon canneries. This wastage can be expected to continue until procedures for profitably utilizing the trimmings are developed. Already the waste (about 20 percent of the total) from a few canneries is being used by shore and floating reduction plants to produce fish meal and oil. Possibly the waste from a few additional canneries could be handled profitably by similar plants. The bulk of the waste, however, will not be used until new processes and products are developed. In fact, several processes are required, for each cannery has its own individual problems.

Methods for preparing two nutritious food products from the edible parts of salmon cannery waste have been reported (Anderson and Piskur 1944). For esthetic reasons, these products were never commercialized. Methods have been investigated for the alkali extraction of oil from various parts of the waste, as well as from the whole waste (Anderson 1945; Butler and Miyauchi 1947; Carlson and Magnusson 1948). An excellent literature survey of the salmon waste utilization possibilities has been prepared by Jones and Carrigan (1947). They suggested that the most promising are processes which use only certain parts of the trimmings, for instance, livers for the production of vitamin concentrates, eggs as a source of cholesterol (Jones, Carrigan, and Dassow 1948), milt for production of amino acids, and the digestive tract as a source of enzymes. As yet, no one process appears sufficiently profitable to warrant the high cost of hand, or even mechanical, separation. However, the simultaneous separation and processing of several parts might be economically feasible.

Published information on the amounts of each part which could be recovered from the standard cannery butchering and trimming equipment was quite incomplete. Therefore, on several occasions during the 1946 and 1947 canning seasons, special efforts were made to secure and separate representative samples of the trimmings from each of the five species of salmon:

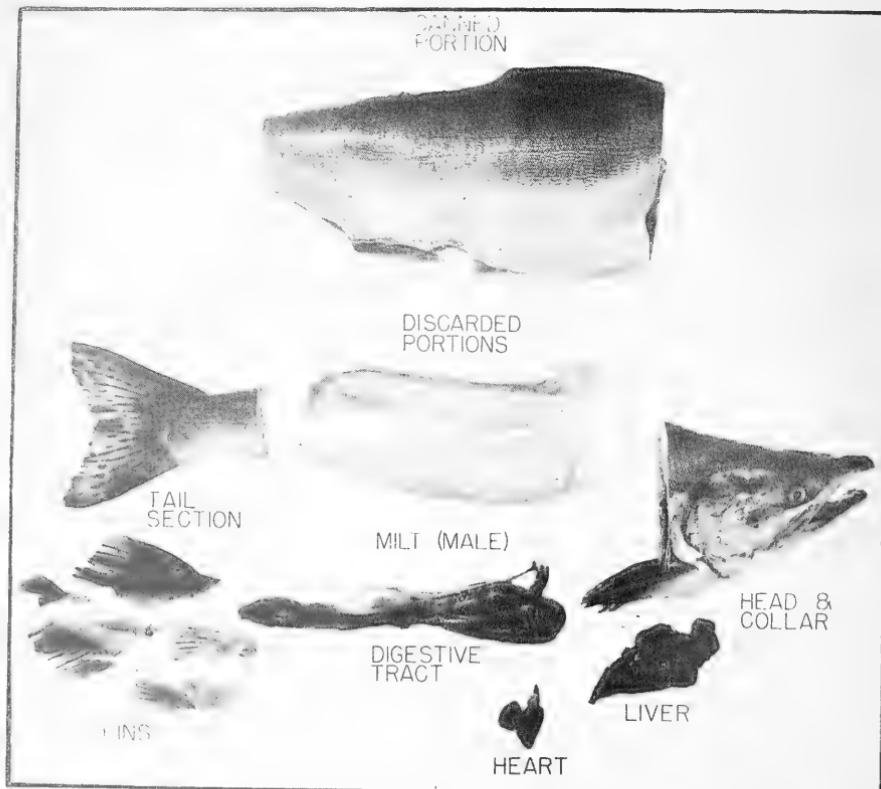
* CHEMIST IN CHARGE } FISHERY PRODUCTS LABORATORY, BRANCH OF COMMERCIAL FISHERIES,
** LABORATORY ASSISTANT } U. S. FISH AND WILDLIFE SERVICE, KETCHIKAN, ALASKA.

NOTE: RESEARCH ACCOMPLISHED AT KETCHIKAN FISHERY PRODUCTS LABORATORY WHICH IS JOINTLY OPERATED BY THE ALASKA FISHERIES EXPERIMENTAL COMMISSION AND THE U. S. FISH AND WILDLIFE SERVICE.

Pink, or humpback (Oncorhynchus gorbuscha)
Red, sockeye, or blueback (O. nerka)
Chum, fall, or dog (O. keta)
Silver, or coho (O. kisutch)
King, chinook, or spring (O. tshawytscha)

COLLECTION AND SORTING OF SALMON CANNERY WASTE

In 1946, the trimmings were collected in a 12-inch diameter wire-mesh basket by placing it directly in the chutes coming from the header and the "iron chink" (trimming and cleaning machine). Collections that year were made from four of the canneries accessible to Ketchikan by road: Ketchikan Packing Co., P. E. Harris & Co., New England Fish Co., and Wards Cove Packing Co. In 1947, all samples were secured from the Ketchikan Packing Company cannery. In the latter year, larger baskets, 16 by 16 by 10 inches, were held under the end of the chute. In both years, each sample studied weighed at least 100 pounds. Because a larger basket was used, the 1947 samplings were probably the better. Actual counts of heads, tails, egg sacs, and milts indicated that fairly uniform and representative samples were secured.



At the laboratory, each sample was carefully and quantitatively sorted into eight parts: heads plus collars, hearts, fins, tails, livers, eggs, milt, and digestive tracts. During the sorting operations, small amounts of liquid always separated, and there were small quantities of solid material too broken to identify. These two portions, which were comparatively small were discarded.

In the tables each datum on the amount of a part is presented as a percentage of the total weight of the eight identified parts. The composition of the

Species	Year	No. of samples	Composition Ranges in Percentages							
			Heads & collars	Hearts	Fins	Tails	Livers	Eggs	Milt	Digestive tracts
Pink	1946	5	51.7-62.5	0.7-0.9	5.6-21.0	2.3-10.0	1.3-4.9	5.8-18.3	1.7-11.3	1.0-15.0
	1947	5	53.0-60.7	0.8-0.9	6.8-9.4	6.1-8.5	4.4-5.1	5.0-8.4	3.9-5.5	7.2-11.7
Red	1946	4	41.7-54.9	0.8	4.4-7.9	5.5-11.6	3.5-7.0	2.9-23.2	3.0-17.0	2.7-10.5
	1947	2	64.8-70.5	0.8	7.0-8.5	6.7-7.2	3.4-4.0	3.7-6.1	1.1-2.1	6.2-7.1
Chum	1946	4	45.7-49.9	0.6-0.7	3.6-7.9	4.5-8.0	4.6-6.6	14.8-29.6	2.7-11.0	5.7-9.7
	1947	3	58.6-63.3	0.7-0.8	5.5-6.5	3.8-4.4	4.6-5.2	7.8-9.9	4.1-6.3	7.6-9.7
Silver	1946	4	54.1-74.2	0.9	2.3-5.9	4.8-10.5	2.9-4.0	3.1-9.5	1.9-7.4	8.8-16.9
	1947	2	58.9-60.7	0.7	6.7-7.3	2.0-2.8	5.2	8.9-10.4	6.6-7.3	6.9-9.5
King	1946	3	46.2-51.4	0.7	3.7-6.6	5.0-5.9	2.5-4.9	5.2-30.9	1.3-7.1	7.7-25.5

cannery waste, of course, varies throughout a single season, depending considerably on the maturity of the fish; for instance, late in the season the eggs and milt become more important fractions of the total waste. Some variations from year to year and area to area are to be expected. The proportions of recoverable waste parts also depends on the freshness of the fish going through the butchering machinery and the care with which the machinery is adjusted. The data presented must be considered as simply the best estimates obtainable by the procedures employed at Ketchikan during 1946 and 1947. Possibly, the ranges reported in Table 1 are of more significance than the averages shown in Table 2.

Part of Fish	Average Composition of Total Waste				
	Species of Fish				
	Pink	Red	Silver	Chum	King
Heads and collars	Percent	Percent	Percent	Percent	Percent
Hearts	56.6	58.6	59.9	52.5	49.4
Fins	0.8	0.8	0.8	0.7	0.7
Tails	9.1	6.7	5.5	5.4	5.1
Livers	7.2	7.7	6.1	5.0	5.4
Eggs	4.2	4.7	3.9	5.3	3.6
Milt	8.3	9.9	7.4	17.0	14.6
Digestive tracts	4.6	5.2	5.2	6.0	3.9
	9.2	6.4	11.2	8.1	17.3

OBSERVATIONS ON USE OF SALMON CANNERY WASTE

In 1949, the total quantity of salmon cannery trimmings utilized was greater than in any previous year. Yet it amounted to barely 20 percent of the total trimmings available in Alaska, and essentially all this was used to produce meal and oil. The trimmings from canneries producing 80 percent of the salmon pack of Alaska were discarded. At the frequently used and fairly accurate figure of 25 pounds of trimmings per standard case of canned product (48 pounds per case), the 3,500,000 cases produced by these canneries (about 100) indicates that 87,500,000 pounds of salmon material were wasted. This was roughly distributed as follows:

Type of Salmon Waste	Pounds	Type of Salmon Waste	Pounds
Heads and collars	49,000,000	Livers	4,000,000
Hearts	700,000	Eggs	8,500,000
Miscellaneous fins	7,000,000	Milt	4,300,000
Tails	6,000,000	Digestive tracts	8,000,000

To secure an estimate of the amount of each waste part available at an "average" cannery, producing 35,000 cases of canned salmon, the above figures need only be divided by 100.

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FISHERY BYPRODUCTS INDUSTRY

DO YOU KNOW.....

That the press liquor from fish reduction processes is run through evaporators and concentrated until a product with a content of 50 percent solids is obtained. This concentrate is a very good source of the animal protein factor and vitamin B₁₂ important for producing more economical weight gains in poultry and swine and increasing the hatchability of eggs . . .



RESEARCH IN SERVICE LABORATORIES

July and August 1950

REFRIGERATION: Palatability tests were made on commercially packed Pacific Coast rockfish fillets which had been frozen and stored under controlled conditions. The scores given the fillets indicate that Sebastodes alutus (long-jawed rockfish) and Pinniger (orange rockfish) were about equal as to quality with the possibility of a slight advantage being given the latter. Fillets of S. diploproa (lobe-jawed rockfish) were the least desirable of the three species. The storage of fillet samples will be continued and further tests made since no conclusive results have been obtained.

* * *

Various treatments are being investigated as a possible preventive against the growth of pink yeast in frozen packaged oysters. The growth of this yeast in oysters has been a source of serious loss to the industry in the past, particularly during some periods.

* * *

BYPRODUCTS: Analytical data on a large number of hatchery food materials were checked and compiled for use in the preparation of a report on evaluation of hatchery diets.

Riboflavin, niacin, biotin, and vitamin B₁₂ assays have been completed on 11 frozen samples of the raw components of the hatchery diets. Beef and hog liver are comparable with regards to the amounts of these vitamins, while hog spleen has lower amounts of each. Although tuna livers and salmon livers are lower in these vitamin contents than beef liver, they appear to be fairly good sources of these vitamins. Tuna livers appear to be slightly better than salmon livers.

* * *

Several of the fish meal factories have been visited for information as to the method of preparation of meal and oil in different plants. The information obtained will be used to make selections of samples for tests of the Animal Protein Factor (AFF) contained in meals prepared by different procedures.

* * *

CANNING: In the tuna-canning project, weights and measurements have been taken on all tuna before canning. A brief summary of the data indicates that the length of the fish varies between 23 and 26 inches with an average of about 24 inches. The weight varies between 8 $\frac{1}{2}$ and 15 pounds with an average of about 10 pounds.

OYSTERS ARE GOOD THE YEAR-AROUND

The wide-spread notion that oysters are harmful to consumers when eaten during the "non-R" months is debunked by the Assistant Surgeon General of the U. S. Public Health Service in a statement issued on September 1, the opening date of the traditional oyster season. "Oysters are edible the year-around," the Assistant Surgeon General declares, "but they are fatter, more palatable and more plentiful on the market during those months that contain the letter 'R'. It is only coincidental that those months in which the oyster is most palatable happen to be the 'R' months."

Mark D. Hollis, Assistant Surgeon General, said the tradition that oysters must be eaten only in the "R" months may have originated somewhat as follows: In the species of oyster eaten in the Old World for centuries,



all oysters is in the summer, early settlers of this country, cognizant of this but mindful of their Old World variety, avoided placing New World oysters on the menu until later in the year.

Even after our forefathers discovered that the North American east coast oyster fertilizes its eggs in the sea water outside the parent shell, oyster consumption in this country continued, for the most part, to be a winter activity. Partly responsible for this was the fact that only until recent years have refrigeration facilities been developed whereby oysters can be preserved in warm weather while being transported from the coastal growing areas.

Today, when perishable food products are transported thousands of miles by railroad and airplane, yet preserved by refrigeration, the greater portion of the country's shellfish consumers still cling to the old tradition.

The advent of quality frozen oysters available throughout the year, however, may change this custom.

TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

A total of 91 vessels of 5 net tons and over received their first documents as fishing craft during June 1950--3 less than in June 1949, according to the Treasury Department's Bureau of Customs. California led with 19 vessels, followed by Washington with 14, and Texas with 9.

During the first six months of 1950, a total of 442 vessels were documented, compared with 495 during the same period in 1949.

Section	Vessels Obtaining Their First Documents as Fishing Craft, June 1950				
	June		Six mos. ending with June		Total 1949
	1950 Number	1949 Number	1950 Number	1949 Number	
New England	3	3	18	14	35
Middle Atlantic	3	5	27	30	44
Chesapeake Bay	10	8	41	35	87
South Atlantic and Gulf ..	32	32	158	174	369
Pacific Coast	35	38	132	146	327
Great Lakes	2	2	6	27	38
Alaska	6	6	60	66	96
Hawaii	-	-	-	3	5
Unknown	-	-	-	-	1
Total	91	94	442	495	1,002

Note: Vessels have been assigned to the various sections on the basis of their home port.



Alaska Fishery Investigations

ALASKA FISHERIES UNDER RESEARCH FOLLOWING PREDICTED LEVELS OF PRODUCTION: Fishery production in areas, or of species, now subject to research in Alaska is closely following predicted levels, the staff of the Service's Alaska Fishery Investigations reports.

The red salmon spring run at Karluk was close to the projected curve of catch and escapement with 288,403 fish for the former and 386,488 for the latter as of July 29. Control projection was planned to secure a minimum escapement of 375,000 red salmon. Runs to four major areas of Bristol Bay were extremely close to predicted levels, except Nushagak, where the run was somewhat lighter than average expectancy. Total production of Bristol Bay was almost identical with prediction.

Herring production was close to predicted levels with 152,216 barrels in the Kodiak quota area, 164,913 barrels in Prince William Sound, and 70,906 barrels in Southeastern.

Federal Purchases of Fishery Products

DEPARTMENT OF THE ARMY, June 1950: For the U. S. Army, Navy, Marine Corps, and Air Force for military feeding, fresh and frozen fishery products totaling 1,533,551 pounds (valued at \$629,046) were purchased during June this year (see Table). June purchases were up 21 percent in quantity and 43 percent in value as compared with May; and were up 17 percent in quantity and 46 percent in value as compared with June 1949.

Purchases of Fresh and Frozen Fishery Products by Department of the Army (June and the First Six Months, 1950 and 1949)							
Q U A N T I T Y				V A L U E			
June		January-June		June		January-June	
1950	1949	1950	1949	1950	1949	1950	1949
lbs.	lbs.	lbs.	lbs.	\$	\$	\$	\$
1,533,551	1,305,391	6,366,424	7,880,324	629,046	430,175	2,691,444	2,644,674

Total purchases for the first six months this year were 19 percent lower in quantity, but 2 percent higher in value than for the corresponding period in 1949.



Fishery Biology Notes

ARTIFICIAL CULTURE OF OYSTERS: A moderate amount of success in the artificial culture of oysters is reported by the Service's Gulf Oyster Investigations, Pensacola, Florida. A half-dozen cultures are in progress.

Of the three cultures started earlier this summer, 250 oysters have been raised from one crossing and 50 oysters from another. Believed to be among the first that anyone has had to use for experimental work, these oysters have been derived from crossing known pairs of stock. Some of the oysters are approaching two inches in diameter. They will be valuable for investigations on relative effects of heredity versus environment in producing commercially acceptable oysters.

* * * * *

TRANSFERRING OYSTERS TO AREAS OF HIGHER SALINITY: Evidence that transplanting of oysters to areas of higher salinity does not necessarily have an adverse effect is being accumulated by the Service's Gulf Oyster Investigations at Pensacola, Florida. Transfer of oysters from areas having a salinity of 20 to 29 has consistently resulted in a stimulation of shell growth and an increase in percent solids. Mortalities in all cases were less than 2 percent for the 4-month period following transplantation.

Recently, large and small oysters exposed to salinities of 0 to 4 for a 4-month period in Mississippi Sound were suspended in the Gulf at a salinity level of 29 to 33.3. In the succeeding 3-week period, the oysters showed an average length increase of 3 mm, and a mortality of 0.9 percent. Perhaps the importance of high salinity shock in the Gulf area has been overemphasized.

Observations at the Pensacola Laboratory for the past 14 months on a sample of oysters of identical age (within 12 hours) of presumably different parentage

show total length of individuals may vary up to 300 percent at any given time. Continuous care given these oysters has resulted in their assuming extraordinary uniformity in shape and shell character of a highly desirable nature. Groups of spat obtained from larvae fertilized and raised in the laboratory from individual pairs of parents show similar ranges in total length. Possibly because of the small amount of handling they have received, they exhibit great diversity in shape and shell character.

It is hoped that continuation of this work will add to the information on relative importance of heredity and environment in producing commercially desirable oysters.

* * * * *

EXPERIMENTAL SETS OF HARD CLAMS (QUAHOGS) OBTAINED: Experimental sets of hard clams (Venus mercenaria) have been obtained in outdoor experimental tanks at the Service's Biological Laboratory at Milford, Conn. This is the first successful attempt of this sort. Since much has been learned in the last two or three years about methods of propagation of this clam and since reliable methods have been developed for its cultivation, the Laboratory staff hopes within a short time to be able to pass this information on to practical clam growers who can begin to grow clam sets.

* * * * *

NORTH ATLANTIC SALMON STOCKING PROGRAM: Stocking of sea-run salmon in New England from July 1, 1949, to June 30, 1950, was somewhat greater than for the previous year, according to the Service's Atlantic Salmon Investigations at Orono, Maine.

Eight rivers have been stocked with 100,000 feeding fry, 198,000 fingerlings, and 88,000 yearlings--a total of 386,000 Atlantic salmon. Also, 4 rivers were stocked with 107,000 feeding fry and 8,000 yearlings--115,000 silver salmon (Oncorhynchus kisutch). To check on survival, the biologists marked by fin clipping 184,000 of the 501,000 stocked sea-run salmon.

The work to date points to the inescapable conclusion that restoration of Atlantic salmon hinges primarily on providing adequate passage past obstructions. There is not now a single large river up which salmon can migrate freely to the best spawning and nursery areas.

In June this year, two crews started surveys to determine environmental conditions on present and potential salmon streams. During the first summer, the surveys will be confined chiefly to physical conditions, such as stream flow, temperature, gradient, bottom types, location and description of all obstructions or other hazards to migration, and location and type of pollution. On subsequent surveys, the crews will collect data on fish populations and food organisms.

The University of Maine is collecting bottom fauna on Little Falls Stream to determine the relation of food organisms to salmon survival. Simultaneously, the Service's Atlantic Salmon Investigations is holding different numbers of salmon in identical enclosures to determine both their survival and the effect of numbers of fish on food organisms.

The Maine Department of Sea and Shore Fisheries is holding silver salmon in salt water at Boothbay Harbor to determine the feasibility of rearing silver salmon to the adult stage to provide spawning stock.

* * * * *

SHAD TAGGING EXPERIMENTS: Shad-tagging experiments this year, especially on the Hudson River, are yielding some rather interesting information on shad migration, the Service's Middle and South Atlantic Fishery Investigations reports. Of some 1,300 tags released, a number have been returned from the Hudson River proper; a significant number have been recovered off the New Jersey coast and Long Island, and most recently from the Maine coast. Some idea is being obtained of the rate of travel of shad between their spawning streams and summer feeding grounds.



Gulf Exploratory Fishery Program

SHRIMP AREA LOCATED OFF ALABAMA AND MISSISSIPPI COAST: Promising catches of brown grooved shrimp (*Peneus aztecus*) were reported on August 5 by the Service's Gulf exploratory fishing vessel Oregon. Moderate quantities of large shrimp were caught by several 30-minute drags with a 40-foot shrimp trawl, in 41 to 48 fathoms approximately 60 miles off the islands of Alabama and Mississippi (between 88° West and 88°5' West longitude). Size of the shrimp was 7 to 8 count (number of heads-on shrimp per pound).

No shrimp were caught outside the 50-fathom curve. Inside the 40-fathom depth, the grooved shrimp catches were of mixed sizes with *Peneus aztecus* making up about 70 percent and *P. duorarum* (brown-spotted or pink grooved shrimp) about 30 percent of the catch.

The Oregon plans to explore this area further using a full-size commercial shrimp trawl.



National Fisheries Trends and Outlook--July-September 1950

General business conditions during July, August, and September this year were expected to be good, and edible fishery products were expected to be in a favorable market position as compared with a year ago.

PRODUCTION: Fisheries production during the summer months, when maximum production is achieved in the fisheries, may be no better than in 1949. The commercial catch of fish and shellfish thus far this year has not been significantly different than in the same months of 1949, nor is much change anticipated for the rest of the year, according to a report issued in July by the Bureau of Agricultural Economics, Department of Agriculture, and prepared in cooperation with the Fish and Wildlife Service.

FROZEN FISH: Commercial freezings of fishery products in the United States and Alaska during the first half of 1950 were 2 percent smaller than a year earlier. This decline occurred mainly in New England and is due to many factors, among the most important of which are the fewer number of larger fishing vessels in operation, the decline in the quantity of popular species of fish available in the fishing areas adjacent to the coasts, and the decline in the landings of whiting in New England.

Total stocks of frozen fishery products in the United States and Alaska on July 1 were 2.5 percent larger than a year earlier. With production at a seasonal

high level in the summer and first part of autumn, stocks of these products will be increased so that sufficient supplies will be available for distribution during the months of low production in late 1950 and early 1951.

CANNED FISHERY PRODUCTS: For current domestic needs, canned fishery products appear adequate. Producers' stocks of these commodities on June 30 were lower than a year earlier, according to information from trade sources. Production in 1950 is currently expected to be very large, exceeded only by the record 1941 pack of 885 million pounds of canned fish and the near record output in 1949. For most of the popular species of canned fish, the 1950 pack may not be larger than last year, but the canned tuna pack may set a new record.

IMPORTS OF FISHERY PRODUCTS: In the first four months of 1950, imports of edible fishery products totaled 158.5 million pounds--more than 15 percent greater than a year earlier. Increases were reported for each of the three major groups of fishery products--fresh and frozen, canned, and cured. Imports of fishery products the latter part of this year are expected to continue larger than in 1949.

EXPORTS OF FISHERY PRODUCTS: During January-April 1950, exports of edible fishery products, on the other hand, totaled 22 million pounds and were about one-fourth smaller than in the same months last year, with the decline principally in canned fishery products. Fishery products exports during the latter part of this year will be lower than during the same period in 1949.

CONSUMPTION AND DISTRIBUTION: U. S. civilian per capita consumption of fishery products during the last half of 1950 is expected to be about the same as in the comparable period last year. During the first six months of 1950, U. S. civilian consumption of fresh and processed fishery products per person was approximately the same as a year earlier.

The movement of fresh and frozen fish into domestic channels during this period was lower while that of canned fish was somewhat larger than for the same months of 1949.

PRICES: Retail prices of fresh and frozen fishery products during the last half of 1950 probably will average about the same and may even exceed slightly those of the first half of this year; canned fish are also likely to average somewhat higher.



North Atlantic Fishery Investigations

"ALBATROSS III" RETURNS FROM A FISH CENSUS OF CERTAIN NEW ENGLAND BANKS (Cruise No. 37-A): After completing a census of the fish populations on Georges Bank, Browns Bank, and the Inner Grounds of the Gulf of Maine, the Albatross III, research vessel of the Service's North Atlantic Fishery Investigations, returned to Woods Hole on August 10. The vessel had left on July 31 to complete the census started on its previous cruise, which had been cut short because of engine trouble.^{1/}

During this cruise, 59 stations (79 one-half hour tows) were completed. Large numbers of baby haddock, were taken on the southeast part of Georges Bank and

^{1/} SEE COMMERCIAL FISHERIES REVIEW, AUGUST 1950, P. 17.



PUTTING OVERBOARD THE FORWARD ROLLERS OF THE OTTER TRAWL NET ABOARD THE ALBATROSS III, RESEARCH VESSEL OF THE SERVICE'S NORTH ATLANTIC FISHERY INVESTIGATIONS.

Rewards of \$1.00 are being paid for every tagged fish returned to the Fish and Wildlife Service.

A line trawl was fished unsuccessfully during the cruise in an attempt to determine the nocturnal distribution of rosefish.



Pacific Oceanic Fishery Investigations

"HUGH M. SMITH" OBSERVES OCEAN CURRENTS AND FISH FOOD (Cruise No. V): Making observations upon the mid-summer ocean currents and fish-food content of the waters between the Hawaiian Islands and 5° S. latitude were the primary objectives of a seven-week cruise which the Hugh M. Smith completed on August 6. This vessel of the Service's Pacific Oceanic Fishery Investigations operated westward as far as Midway Island and south of the Equator to the Phoenix Islands.

Oceanographical Observations: The primary mission of the cruise, to complete two hydrographic sections across the equatorial, counter-equatorial current system, was successfully accomplished. At each of 51 stations temperatures were taken and water samples collected for determination of salinity, dissolved oxygen, and inorganic phosphates. At the majority of these stations the maximum sample depth was 1,500 meters; in a few chosen localities deeper casts were made to 3,000, and in some cases 4,000 meters.

Two bathythermograph casts were taken at each station; in addition, casts were made at 10-mile intervals between stations and at either 20- or 30-mile intervals while running other than along the hydrographic sections. A total of 502 bathythermograms were made in all.

Fippennies Ledge. Scrod haddock (yearlings, and two-year old fish) were most abundant southeast of the Leg, on the northern edge of Georges Bank, and on the western edge of Browns Bank. Small catches (1-3 bushels) of large haddock were caught outside 100 fathoms on the Northern Edge. Rosefish were caught in commercial quantities 10 miles west and 50 miles east-north-east of Cashes Ledge in 70-75 and 115-120 fathoms, respectively. Data on the size, numbers, and weight of all species of fish, bottom temperatures, and bottom samples were obtained at each station.

Sea scallops (198 in number) were tagged and released in 46 fathoms of water 125 miles O80° True from Nantucket Lightship. This raises the total number of tagged sea scallops to almost 400.

From the oceanographical data gathered on this cruise will be computed the positions and speeds of the major ocean currents of the equatorial system and the areas of upwelling. These data will be compared with a similar series of observations made last January and February to determine what may be the characteristic winter and summer conditions of this complex current system.

Plankton Hauls and Night-Light Fishing: At each of the 51 hydrographic stations an oblique (surface to 200 meters to surface) plankton haul was made for the purpose of obtaining (1) samples of any tuna eggs and larvae present and (2) estimates of the abundance of zooplankton (fish food) to correlate with the results of the physical and chemical oceanography.

Night-light fishing was conducted while hove-to on stations when weather and other conditions permitted. By this means were captured specimens of fish and invertebrates valuable for the reference collection for use in identifying tuna stomach contents, as well as juveniles of a number of pelagic fish including, it is believed, some of the tunas.

Results of Long-Line Fishing at Canton Island: Seven days of long-line fishing in waters adjacent to Canton Island yielded 77 tuna (73 yellowfin, 50 to 190 pounds each; 4 albacore, 30 to 40 pounds each) and 6 marlin (4 white and 2 black, estimated at 250 to 400 pounds each). Thirty baskets of gear of generally similar design to that used commercially in the Hawaiian Islands were set each day. The catch represents an average yield of 7.5 fish per hundred hooks per day, which may be considered good fishing. This is not truly indicative of what a commercial vessel might have achieved as our fishing was performed in such manner as to learn something of the vertical and horizontal distribution of the fish rather than to catch the greatest possible number of fish. In general, significantly more fish were found on the leeward side of the Island than on the windward side and more within 5 to 10 miles of the Island than from 15 to 20 miles distant.

Frozen herring and fresh mullet taken from the Canton Island Lagoon were used as bait. The majority of the catch was taken on mullet, one or more species of which are readily available in most of the shore and lagoon waters of the Central Pacific Islands.

Bait Fish Surveys: Small quantities of the bait fish "iao" (Pranesus insularum) and "piha" (Spratelloides delicatulus) were seen at almost all the localities visited throughout the Leeward Islands, but nowhere in sufficient quantities to warrant making a set with the seine.

Mullet of two species were found in abundance in the Canton Island Lagoon and about 500 pounds were easily obtained for use in long-lining.

Observations of Tuna Schools at Sea: A continuous watch was kept for schools of tuna and associated flocks of birds when running during daylight hours. The location of fish schools, behavior, their identification when possible, and the time seen were entered in the log. A volume of such observations may provide supplementary data in determining areas of greater and lesser fish abundance. On this cruise considerably more fish activity was observed in water adjacent to islands than in the open ocean.

Two or three surface lures were trolled almost continuously during daylight hours and the catches lagged. Although few fish were taken by this method, the fish were, for the greater part, taken close to land areas.

Biological Data From Tuna Specimens: All tuna taken on the long line, except those damaged by sharks, were weighed, their total length obtained, and stomachs removed for later study on food habits. The gonads of females were preserved for study of degree of sexual maturity and, from a considerable number, vertebral sections were removed for studies of age and growth. Detailed morphometric measurements were made on a few representative fish. The same material, except for weights, was obtained from the fish caught by trolling.

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"HUGH M. SMITH" TO CAPTURE TUNA EGGS AND FRY (Cruise No. VI): The capture of tuna eggs and fry (needed in the study of the life history and habits of the tunas) is the purpose of a 3-week survey in the general area of the Hawaiian Islands by the Hugh M. Smith. The vessel sailed from Honolulu on August 18. Nets of fine mesh capable of catching the eggs, which are only 1/25 of an inch in diameter, will be used. The nets will be fished from the surface of the sea to depths of 1,000 feet. Although a number of small tunas ranging from 1/6-inch to 1/3-inch were caught in the Hawaiian area during May 1950, additional material is required for the identification of the younger stages of these fish, as the fry are quite different in appearance from the adults and a connected series of all sizes is needed. Information concerning the depth at which the young occur is also needed to facilitate search for tuna spawning grounds in other portions of the ocean.

As a secondary project, a kite-like device is to be tested as a means of lowering scientific gear and trolling lures to the subsurface levels while the ship is underway at speeds in excess of 5 miles per hour. Ordinary weights cannot be used for this purpose because the drag of the water at speeds greater than 4 miles per hour causes them to rise.



Service Film Selected for Showing at Venice Film Festival ✓

Among the 20 United States Government films selected for showing at the International Exhibition of Cinematographic Art at Venice, Italy, August 8 to September 10, 1950, is the Fish and Wildlife Service film Food for Thought,^{1/} the Department of State reported on August 9.

The purpose of the Festival is to give public recognition to those films which demonstrate outstanding progress in this medium of artistic expression and cultural advancement. The United States Government has participated in previous festivals in 1948 and 1949 by the showing of films and a duly designated representative.

Twenty-eight countries are expected to participate in the Festival at Venice this year.

The United States Government selections were made by the Interdepartmental Review Committee on Visual and Audio Materials, composed of representatives of all of the motion-picture producing agencies of this Government.

^{1/} SEE COMMERCIAL FISHERIES REVIEW, AUGUST 1950, P. 22.



Personnel Changes in the Branch of Commercial Fisheries

With the establishment of a new position (Refrigeration Specialist) in the Branch of Commercial Fisheries, a shifting of present personnel has taken place, the U. S. Fish and Wildlife Service announced on August 25. The new position has been established in order to develop freezing processes that will meet the specialized needs of commercial fishermen.



J. M. LEMON

processes. He has had wide experience in refrigeration and freezing of fish since joining the former Bureau of Fisheries in 1928.

J. M. Lemon, who has been Chief of the Branch's Technological Section since 1943, has been appointed to fill the Refrigeration Specialist position. His transfer to the Service's College Park Fishery Technological Laboratory on the University of Maryland campus became effective September 18. His initial assignments include studies of methods of freezing fish at sea and the preparation of a new manual on freezing



H. E. CROWTHER

H. E. Crowther, who for the past year has been Chief of the Branch's Exploratory Fish and Gear Development Section, has been appointed Chief of the Technological Section. He has had a broad education in fishery technology and research. He obtained his Master of Science degree at the University of Maryland, and began fishery research work at the College Park Fishery Technological Laboratory under an industrial fellowship, and later did fishery research for private industry.



Service Increases Use of Fish in North Carolina School-Lunch Program^{1/}

One method used by the U. S. Fish and Wildlife Service to increase the use of fishery products in the school-lunch program is a series of demonstrations for school lunchroom managers and officials in various states. Part of the school-lunch fisheries program in North Carolina was the presentation during 1949 of 10 workshop demonstrations for certain schools. These workshop demonstrations were presented in cooperation with the State School-Lunch Program operated by the State Department of Public Instruction and the U. S. Department of Agriculture's Production and Marketing Administration.

These workshops, which generally last for three days, are part of the State's lunchroom personnel training program. The Service took part in those held in Ply-

^{1/} THE EDUCATIONAL AND MARKET DEVELOPMENT SECTION OF THE SERVICE'S BRANCH OF COMMERCIAL FISHERIES DURING THE PAST YEAR AND A HALF HAS BEEN ENGAGED IN DEVELOPING MARKETS FOR FISHERY PRODUCTS THROUGH THE SCHOOL-LUNCH PROGRAM BY ENCOURAGING THE USE OF THESE PRODUCTS IN SCHOOL-LUNCH MENUS. SCHOOLS, AS VOLUME USERS OF FOOD IN THEIR LUNCH PROGRAMS, REPRESENT A LARGE POTENTIAL MARKET FOR FISHERY PRODUCTS. IN ADDITION, EDUCATING CHILDREN TO EAT FISH AND SHELLFISH WILL MAKE THEM BETTER POTENTIAL ADULT CONSUMERS IN THE FUTURE. MOST SCHOOL-LUNCHROOMS ARE NOT ACCUSTOMED TO USING FISH AND SHELLFISH BECAUSE SCHOOL LUNCHROOM MANAGERS AND OFFICIALS CLAIM THAT FISHERY PRODUCTS ARE TOO DIFFICULT TO PREPARE, CREATE STRONG COOKING ODORS, ARE TOO EXPENSIVE, ARE NOT EATEN BY MOST CHILDREN, OR THAT THESE PRODUCTS ARE NOT READILY AVAILABLE IN THEIR PARTICULAR AREA.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, JULY 1950, P.17; APRIL 1950, PP. 49-51.

mouth, Elizabeth City, Clinton, Sanford, Hickory, Yadkinville, Asheville, Durham, and Greensboro. A total of 545 persons attended, representing 205 schools having an enrollment of 113,400 children of which approximately 55,300 are served daily.



HOME ECONOMIST TESTING A SCHOOL-LUNCH RECIPE IN THE SERVICE'S TEST KITCHEN AT THE COLLEGE PARK (MD.) FISHERY TECHNOLOGICAL LABORATORY.

All of the demonstrations presented were of the institutional type--recipes suitable for quantity cooking were shown. After giving some of the reasons for using fish (emphasizing their nutritive value), and hints on purchasing and market forms, six fish dishes were prepared by the Service's home economist. Canned fish was used for three and fish fillets for the other three. The canned fish recipes were a fish loaf, a fish salad, and creamed fish; the filleted fish recipes were oven-fried fish, baked fish in an oil sauce, and baked fish in a Spanish sauce. The demonstrations were presented in the school lunchrooms, using only the equipment on hand. At the end of each demonstration, which took only 1½ hours, the people present were invited to taste the prepared dishes.

To determine what increase, if any, had resulted from these demonstrations, a survey was made to ascertain the use of fishery products in North Carolina schools both before and after the demonstrations. The menus of 162 of the schools which had representatives at the workshop demonstrations were studied. The fishery products used by these schools were determined for February 1949 (before the demonstration) and February 1950 (after the demonstration). Information regarding the schools'

use of fish and shellfish was obtained from their menus, which are kept on file in the superintendents' offices for a period of three years. For a control, 30 schools not represented at the fish-cookery demonstration were selected at random in various sections of the State. These schools were checked for their use of fishery products in February 1949 and February 1950, in the same manner as these represented.

First, the number of times which the schools used fish in the check months, and the average frequency of fish used per month per school was determined. Second, the number of pounds of fish which each school had used in the check months was calculated. The average number of lunches served in each school in February was multiplied by the standard 2-ounce lunch portion and then multiplied by the number of times that fish was served. Since fish shrinks in cooking, it takes 3 ounces of fresh fish prepared for cooking to give the 2-ounce portion required in the schools. This fact was taken into consideration in calculating the number of pounds of fish purchased by the schools.

The survey showed that schools represented at the demonstrations had increased their use of fish while schools not represented showed a decrease in their use of fish, as follows:

Item	Times Fish Was Used Per Month Per School		Percentage Change Increase (+) or Decrease (-)	Average Amount of Fish Used Per Month Per School		Percentage Change Increase (+) or Decrease (-)
	Feb. 1949	Feb. 1950		Feb. 1949	Feb. 1950	
Schools represented	Avg. No. 1.25	Avg. No. 1.49	Percent +19.2	lbs. 59.5	lbs. 70.2	Percent +17.9
Schools not represented	1.37	1.03	-24.5	41.1	32.3	-21.5

The value of the workshop demonstrations can be better shown in dollars and cents. Projected over the 1949-50 school year, the increase which these schools showed over their past fish consumption represented approximately 20,000 pounds of fish and at 35 cents per pound--\$7,000.

Had the schools represented at the demonstrations in 1949 decreased the quantity of fish used on the same ratio as the non-represented schools, the former would have used approximately 47,000 pounds of fish less during the 1949-50 school year. The schools pay an average of about 35 cents per pound for the fish. Thus, all the schools represented at the 10 demonstrations in 1949 bought approximately \$16,450 more fish in the 1949-50 school year than they would have purchased if they had followed the trend of the non-represented schools. The value of the fish-cookery demonstrations in increasing the use of fish in the North Carolina school-lunch program is thus evident.

It was noted that of the various kinds of fish used, canned salmon and frozen rosefish (ocean perch) fillets are outstanding favorites in the schools.

To see how much the schools were using the recipes demonstrated, a check was made on the type of fish preparation being used in the schools before and after the demonstrations. It was found that the use of the oven methods of preparing fish had quadrupled in the schools represented at the demonstrations. No school mentioned pan-fried fish after seeing a demonstration. In fact, the increase in the serving of oven-prepared fish appeared to be one of the largest single factors in the increased use of fish. Since oven-preparation of fish is stressed in the demonstrations, the change in the method of preparation can be attributed to the demonstrations.

A report on the results of a more intensive program of 19 demonstrations held throughout North Carolina in 1950 is planned. However, sufficient time has not elapsed to make a comparison of the use of fish before and after these demonstrations.

--Robert P. Seifert, Fishery Marketing Specialist,
Educational and Market Development Section,
Branch of Commercial Fisheries,
U. S. Fish and Wildlife Service.



Service to Administer Dingell Bill Provisions

Federal aid for State fishery restoration projects, authorized by H. R. 6533 (signed by President Truman on August 9--P.L. 681) will be administered by the U. S. Fish and Wildlife Service on a nation-wide basis beginning on July 1, 1951, when the first excise tax funds become available, the Secretary of the Interior announced in August. Plans for the establishment of an adequate administrative set-up in the Service are now under consideration.

The "Dingell Bill," vetoed by the President last year, was reintroduced into the present session of Congress after it had been rewritten to remove the items to which the Chief Executive objected.

In language, this bill is patterned after the highly successful Federal Aid to Wildlife Restoration Act of 1937, known as the Pittman-Robertson Act. Funds to finance the Federal share of this cooperative fishery work will come from the 10-percent excise tax on fishing rods, reels, creels, and artificial lures, baits, and flies. This income will be appropriated annually by the Congress and then allotted to the States.

To insure equality of distribution, each State's share will be based upon the number of its angling license holders as compared to the total in all the States, and upon the percentage relation of the area of each State (including coastal and Great Lakes waters) to the area of all the States.

In order to give a few of the small States sufficient working capital to finance substantial undertakings, the law further provides that "no State can receive less than one percent nor more than five percent of the total apportioned to all of them." Provision is also made for the annual apportionment of as much as \$75,000 to Alaska, \$25,000 to Hawaii, and \$10,000 each to Puerto Rico and the Virgin Islands.

The new law provides, as in the case of the Pittman-Robertson Act, that the States through their fish and game departments shall select suitable fishery restoration projects. Work on such projects will be done by State-employed personnel. The State will be entitled to reimbursement for 75 percent of the cost of the work performed, and all lands acquired, structures erected, and equipment purchased will become the property of the States. After July 1, 1953, as much as 25 percent of the annual apportionments may be expended for the maintenance of the completed projects.

"Federal responsibilities in handling the program," declared the Director of the Service, "are confined to determining whether projects selected by the States are

approvable under the law; whether the costs to be incurred are reasonable; and whether the work has been satisfactorily performed before reimbursement claims from the States can be endorsed for payment."



Service Closes Fishery Market News Office at Hampton

Because of higher operating costs and curtailment of funds, the Fish and Wildlife Service has found it necessary to close the Fishery Market News Service office at Hampton, Va., the Director of the Service announced on September 1. No daily, monthly, or annual Fishery Products Reports will be issued from Hampton after September 29.

The Hampton Market News Service Office, under the administration of the Service's Branch of Commercial Fisheries, was collecting and publishing daily fisheries production data for the Chesapeake Bay area and a portion of North Carolina. Collection of these data will be discontinued for the following areas: Virginia--lower Northern Neck, York River, and Eastern Shore; Maryland--Crisfield, Cambridge, and Ocean City; and North Carolina--Atlantic, Beaufort, Morehead City, Southport, Englehard, and Pamlico County. However, the collection of daily fisheries production information from the Hampton Roads area will be continued on a limited basis and published in the daily Fishery Products Report issued by the New York Market News Service office.

Originally opened in December 1945, the curtailment of operating funds for the Market News Service Section made it necessary to close the Hampton office on June 30, 1947. It was reopened in August 1948 and Charles D. Stewart, Fishery Marketing Specialist, was put in charge.

Except for information from the areas where the collection of daily production data has been discontinued, all other information on fisheries production, prices, and news items of interest to the fishing industry which appeared in the Hampton reports will also be found in the daily Fishery Products Reports issued by the New York Market News Service office located at 155 John Street, New York City.



South Pacific Fishery Investigations

SOME FINDINGS BY THE PACIFIC SARDINE RESEARCH PROGRAM: Sardine spawning in the Pacific during the 1949 season was more restrictive and later in the year than during some previous seasons, according to the data gathered on the monthly surveys of the three vessels working on the cooperative Pacific sardine research program being conducted by the Service's South Pacific Fishery Investigations in cooperation with the Scripps Institution of Oceanography, the California Division of Fish and Game, and the California Academy of Sciences. The surveys were made in the area between Pt. San Eugenio, Lower California, and the Columbia River, and extending 400 miles offshore. Two areas of major importance were around and south of Cedros Island and off southern California.

Spawning is related to temperature or some associated factor and was found only in waters between 13.3° C. and 16.2° C. (temperature at 15 meters). Spawning



THE BLACK DOUGLAS, THE RESEARCH VESSEL OF THE SERVICE'S SOUTH PACIFIC FISHERY INVESTIGATIONS WORKING ON THE CO-OPERATIVE PACIFIC SARDINE RESEARCH PROGRAM.

The Investigations has completed calculations of fish lengths at successive ages for all fish sampled for age since the 1938-39 season, and is now calculating characteristics of scale-length vs. fish-length regressions for each year-class. A part of these data will be used in examining relationship between year-class strength and amount of growth during the first year of life.

The location of a major spawning area off central lower California suggests the possibility of a subpopulation in that region and raises the question of its contribution to the fishery. Additional work on this is planned.

Using year-class catch curves, the Investigations is continuing work to determine the mechanism of availability and to develop a measure thereof. One present defect is that measures developed include not only changes in availability, but also changes in rates of natural mortality.

One such index is positively correlated, over eight seasons, with the average surface temperature, August through February, for 500 miles off San Francisco. This relationship may be the result of temperature-connected differences in tendency to school, or it may be differences in density (frequency per unit area) of schools along the coast as influenced by the varying distance offshore of warmer waters.

began early in the South, and extended north with progression of favorable temperatures. A small amount of spawning occurred off Oregon in August and September last year.

During 1950, the survey pattern was modified to provide more intensive coverage of spawning areas and to shift this coverage north as the season progresses. Observations were also extended south of Pt. San Eugenio. Results indicate a similarity in location of spawning to the previous season.

Identification, enumeration, and life-history studies of other species taken in plankton hauls have been continued. Samples of catch indicate about 80 percent of the catch was made up of the 1946-47-classes (which contributed about 87 percent of the catch in the 1948-49 season). The 1948-class is either very small or was unavailable. The 1943-, 1944-, and 1945-classes were markedly overavailable. This may indicate entry into the fishery of fish of these year-classes that were spawned off lower California.

U.S. Pack of Canned Crab Meat, 1949

The 1949 pack of canned crab meat totaled 161,829 standard cases, valued at \$3,490,885--a decline of 27 percent in quantity and 28 percent in value as compared with the previous year (table 1). Although the total pack was considerably less

Table 1 - Pack of Canned Crab Meat by Area and by Style of Pack and Size of Can and Case, 1949 (Quantity in Standard Cases, and Actual Cases, and Value to the Canners)									
Area	Species of Crab Processed	Quantity	Total Value		Size of Can and Case		Quantity	Total Value	
			Std. Cases/ ¹	\$	Avg. Price Per Std. Case/ ¹	\$		Actual Cases	Avg. Price Per Actual Case
East Coast:									
Maine, Maryland and Georgia ...	Rock and blue	3,856	76,773	21.41	6½ ounces net (48 cans)	109,322	2,435,575	22.28	
North and South Carolina	Blue	36,532	649,106	19.95	6½ ounces net (24 cans)	90,336	904,822	10.02	
Alabama and Mississippi	"	10,857	217,241	20.01	13 ounces net (24 cans)	5,186	72,365	22.71	
Louisiana	"	46,975	943,120	20.08	16 ounces net (24 cans)	1,490	34,038	22.84	
Total					Other sizes converted				
West Coast:	Dungeness	65,004	1,434,938	22.07	6½ ounces net (48 cans)				
Washington	"	36,652	834,677	22.77					
Oregon and California	"	15,198	278,150	21.08					
Alaska	"	11,474	9,245,655	22.18					
Total		161,829	3,490,885	21.57					
Grand Total					Total	206,554	\$3,490,885	-	

¹/Represent cases of various sizes converted to the equivalent of 48 6½-oz. cans to the case, each can containing 6½ ounces of crab meat.

than in 1948, it was the third largest in history. A reduction in the amount of crab meat canned in each of the Pacific Coast States and Alaska was responsible for the lower pack in 1949. The production in Washington fell off the most, declining from 104,362 cases in 1948 to 65,004 cases in 1949.

Crabs were canned in 2 plants in Mississippi; 5 in Louisiana; 18 in Washington; 10 each in Oregon and Alaska; and 1 plant each in Maine, Maryland, North Carolina, South Carolina, Georgia, Alabama, and California.

The 1949 Pacific Coast pack (consisting of meat from Dungeness crabs) was valued at an average of \$22.18 per standard case, compared with \$22.75 the previous year, the record high of \$27.67 in 1946, and \$7.05 in 1940. The 1949 East Coast and Gulf pack (consisting largely of meat from blue crabs) was valued at an average of \$20.08 per standard case, compared with \$17.43 the previous year, the record high of \$21.11 in 1946, and \$9.70 in 1940 (see table 2).

Table 2 - Pack of Canned Crab Meat, 1940-49 (Quantity in Standard Cases/ ¹ and Value to the Canners)									
Atlantic Coast and Gulf States			Pacific Coast States and Alaska			Total			
Year	Quantity	Total Value	Avg. Price Per Std. Case/ ¹	Quantity	Total Value	Avg. Price Per Std. Case/ ¹	Quantity	Total Value	Avg. Price Per Std. Case/ ¹
	Std. Cases/ ¹	\$	\$	Std. Cases/ ¹	\$	\$	Std. Cases/ ¹	\$	\$
1949	46,975	943,120	20.08	114,864	2,547,765	22.18	161,829	\$3,490,885	21.57
1948	33,382	581,872	17.43	187,402	4,264,622	22.75	220,802	4,846,494	21.95
1947	33,696	667,487	19.81	106,120	2,037,904	19.20	139,816	2,705,391	19.35
1946	120,150	2,536,405	21.11	79,928	2,183,714	27.67	199,078	4,720,119	23.71
1945	29,788	484,869	16.28	25,726	398,898	15.51	55,514	883,767	15.92
1944	36,386	560,735	15.41	50,556	800,723	15.84	86,942	1,361,458	15.66
1943	26,716	412,310	15.43	48,592	782,173	16.10	75,308	1,194,483	15.86
1942	29,656	397,772	13.41	84,892	1,357,293	15.99	114,548	1,755,065	15.32
1941	22,494	235,745	10.48	37,704	311,872	8.27	60,198	547,617	9.10
1940	13,486	130,869	9.70	25,254	178,021	7.05	38,740	308,890	7.97

¹/Cases of various sizes converted to the equivalent of 48 6½-oz. cans to the case.

Of the 26,076 standard cases of crab meat packed in Alaska in 1948, 17,622 cases consisted of meat from king crabs. However, no meat from king crabs was canned in Alaska during 1949.



U.S. Pack of Canned Clams and Clam Products, 1949

The 1949 United States pack of canned clams and clam products amounted to 1,186,060 standard cases, valued at \$8,779,018 to the canners (table 1). This was an increase of 6,286 cases and \$449,379 in value as compared with the production a year earlier.

Table 1 - Pack of Canned Clams and Clam Products by Type of Product and Area, 1949 (Quantity in Standard Cases and Value to Canners)										
Species and State	Number of Plants	Whole and Minced			Chowder, Juice, Broth, and Nectar			Total		
		Quantity Std. Cases ¹	Avg. Price Per Std. Case ²	Total Value \$	Quantity Std. Cases ¹	Avg. Price Per Std. Case ²	Total Value \$	Quantity Std. Cases ¹	Value \$	
Soft Clams:										
Maine	12	155,129	9.47	1,469,711	169,389	5.87	993,469	324,518	2,463,180	
Razor Clams:										
Washington	4	3,847	19.66	75,619	-	-	-	-	3,847	75,619
Oregon	1	-	-	-	-	-	-	-	-	-
Alaska	13	37,810	17.70	659,329	-	-	-	-	37,810	659,329
Total Razor Clams	18	41,657	17.88	744,946	-	-	-	-	41,657	744,946
Hard Clams:										
Short Island	1	-	-	-	-	-	-	-	-	-
New Jersey	1	-	-	-	-	-	-	-	-	-
Pennsylvania	1	-	-	-	-	-	-	-	-	-
Maryland	2	-	-	-	-	-	-	-	-	-
New York	5	74,027	9.25	684,798	14,775	3.06	45,190	88,802	729,988	
Washington	4	26,943	11.17	300,883	4,068	3.85	15,753	31,031	316,636	
California	1	221	13.51	2,885	112	2.68	300	333	3,285	
Alaska	3	-	-	-	-	-	-	-	-	-
Total Hard Clams	18	101,191	9.77	986,555	718,694	5.38	4,532,224	619,885	5,570,890	
Grand Total	467	297,977	10.75	3,203,325	888,083	6.28	5,575,693	1,186,060	6,779,018	

¹Cases of various sizes converted to the equivalent of 48 No. 1 cans, each can of whole and minced clams containing 5 ounces of meat, drained weight; and each can of chowder, juice, broth, and nectar, 10 ounces of gross contents.

²Includes the pack of surf clams in New York, pismo clams in California, and cockles in Alaska.

³Exclusive of duplication.

Production of canned whole clams totaled 66,754 standard cases (valued at \$827,496); minced clams, 231,223 standard cases (valued at \$2,375,829); clam chowder, 863,166 standard cases (valued at \$5,498,974); and canned clam juice, broth, and nectar, 24,917 standard cases (valued at \$76,719). Compared with 1948, the 1949 manufacture of whole and minced clams was 72 percent greater; chowder production declined 12 percent; and the pack of juice, broth, and nectar was 8 percent higher.

Table 2 - Pack of Canned Clams and Clam Products, 1940-49 (Quantity in Standard Cases ¹ and Value to Canners)						
Year	Whole and Minced			Chowder, Juice, Broth, and Nectar		Total Quantity ¹ Std. Cases \$
	Soft Clams ²	Hard Clams	Razor Clams	Std. Cases ¹	Std. Cases ¹	
1949	155,129	101,191	41,657	888,083	1,186,060	8,779,018
1948	107,177	29,085	36,932	1,006,580	1,179,774	8,329,639
1947	33,968	24,863	47,407	1,151,424	1,257,662	8,642,235
1946	167,987	108,638	79,394	1,171,770	1,527,789	11,145,047
1945	64,425	238,475	63,703	533,429	900,032	7,391,098
1944	72,434	71,771	40,450	363,041	547,696	3,820,612
1943	47,746	28,344	40,340	348,364	464,794	2,802,420
1942	72,499	30,515	40,104	639,484	782,602	3,791,058
1941	97,460	32,303	40,192	757,388	927,343	3,711,029
1940	124,697	38,851	74,565	689,515	927,628	3,778,363

¹Cases of various sizes converted to the equivalent of 48 No. 1 cans, each can of whole and minced clams containing 5 ounces of meat, drained weight; and each can of chowder, juice, broth, and nectar, 10 ounces of gross contents.

²Production of canned surf clams in Maine has been included with pack of soft clams.

The over-all average price of whole and minced clams dropped from \$11.72 per standard case in 1948 to \$10.75 per case in 1949. This decline in price during 1949 was mainly due to lower prices paid for minced and whole soft clams, which dropped from \$10.25 per standard case in 1948 to \$9.47 per case in 1949. Average

prices per case for whole and minced hard and razor clams were slightly higher in 1949 than in 1948.

Although over-all average prices of clam chowder, juice, broth, and nectar during 1949 were only 2 cents higher per standard case than in 1948, there were declines in the prices of these products manufactured from hard clams, but an increase in those manufactured from soft clams.



U. S. Pack of Canned Fish Roe and Caviar, 1949

The domestic pack of canned fish roe and caviar in 1949 was the largest and most valuable in history—86,459 standard cases (48 one-pound cans), valued at \$1,969,998 to the packers (table 1). The quantity packed was 71 percent greater than in the previous year, while the value was 34 percent higher.

Product	Number of Plants	Quantity Std. Cases ¹	Price Per Std. Case ¹	Total Value \$	Number of Plants in Each State	
					Std. Cases ¹	\$
Roe:						
Alewife	30	44,106	17.00	749,993	Maryland 7, Virginia 14, North Carolina 9	
Deep sea	3	19,896	10.44	207,780	Massachusetts 3	
Shad	11	4,434	61.64	273,323	Maryland 1, N. Carolina 1, Wash. 2, Oregon 5, Calif. 2	
Herring	1					
Mackerel	2	2,311	15.55	35,930	Conn. 1, Mass. 1, Md. 1, N. C. 1	
Menhaden	1					
Caviar:						
Salmon	2					
Sturgeon	1					
Whitefish	3	4,993	85.57	427,228	New York 3, Wisconsin 1	
Total edible roe and caviar	48 ²	75,740	22.37	1,694,254		
Salmon eggs (for bait)	5	10,719	25.72	275,744	Washington 5	
Grand total	53 ²	86,459	22.79	1,969,998		

¹Cases of various sizes converted to the equivalent of 48 cans, each containing 16 ounces.

²Exclusive of duplication.

Alewife roe accounted for over half of the total pack and 38 percent of the total value. The average price per standard case for alewife roe dropped from \$17.72 in 1948 to \$17.00 in 1949.

State	Number of Plants	Quantity Std. Cases ¹	Total Value \$	(Quantity in Standard Cases ¹ and Value to Canners)	
				Std. Cases ¹	\$
Massachusetts	4 ¹	21,066	223,577		
Connecticut	1 ¹				
New York	3	3,973	371,967		
Maryland	7	10,673	172,707		
Virginia	14	28,759	506,040		
North Carolina	9 ¹	7,696	176,400		
Wisconsin	1 ¹				
Washington	7	10,847	283,544		
Oregon	5 ¹	3,445	235,763		
California	2 ¹				
Total	53	86,459	1,969,998		

¹Cases of various sizes converted to the equivalent of 48 cans, each containing 16 ounces.

Year	Quantity Std. Cases ¹	Avg. Price Per Std. Case ¹	Total Value \$	(Quantity in Std. Cases ¹ and Value to Canners)	
				Std. Cases ¹	\$
1949	86,459	22.79	1,969,998		
1948	50,629	29.10	1,473,320		
1947	52,432	31.30	1,641,228		
1946	58,192	32.75	1,905,538		
1945	36,795	25.77	948,042		
1944	55,677	14.80	824,197		
1943	59,884	17.44	1,044,582		
1942	53,190	17.13	910,890		
1941	76,740	10.63	815,514		
1940	61,852	14.42	891,814		

¹Cases of various sizes converted to the equivalent of 48 cans, each containing 16 ounces.

The over-all average per standard case for all canned fish roe and caviar in 1949 was only \$22.79, compared with \$29.10 in 1948, \$31.30 in 1947, and \$32.75 in 1946 (the highest on record). See table 3.

Virginia accounted for one-third of the quantity packed, and over one-fourth of the value of the 1949 pack (table 2).



U. S. Pack of Canned Animal Food from Fishery Products, 1949

Canned animal food from fishery products packed in 1949 amounted to 1,931,757 standard cases, valued at \$8,663,442 to the canners--an increase of 46 percent in quantity and 24 percent in value as compared with the previous year. The 1949 pack was the largest and most valuable in history.

Table 1 - Pack of Canned Animal Food From Fishery Products by States in Std. Cases ^{1/} & by Size of Can & Case in Actual Cases, 1949 (Quantity and Value to the Canners)							
State	Quantity Std. Cases ^{1/}	Total Value \$	Avg. Price Per Std. Case ^{1/} \$	Size of Can and Case	Quantity Actual Cases	Total Value \$	Avg. Price Per Case \$
Maine and New York	537,188	2,673,800	4.98	8 ounces net (48 cans)	1,824,580	4,760,483	2.61
Massachusetts	464,331	1,560,883	3.57	16 ounces net (48 cans)	1,000,662	3,816,495	3.81
Virginia, Maryland, and Washington	33,074	106,009	3.21	Other sizes converted to 16 ounces net (48 cans)	18,805	86,464	4.60
California	896,489	4,222,320	4.71		Total	2,844,047	\$,663,442
Alaska	75	450	6.00				-
Total	1,931,757	8,663,442	4.48				

^{1/}Cases of various sizes converted to the equivalent of 48 cans, each can containing 16 ounces.

Over 46 percent of the production was canned in California, while the major portion of the remainder was packed in Maine and Massachusetts. Animal food from fishery products was canned in 6 plants in Massachusetts; 4 in California; 2 in Maine; and 1 plant each in New York, Maryland, Virginia, Washington, and Alaska.

Table 2 - Pack of Canned Animal Food From Fishery Products, 1940-49
(Quantity in Std. Cases^{1/} and Value to the Canners)

Year	Quantity Std. Cases ^{1/}	Total Value \$	Avg. Price Per Std. Case ^{1/} \$
1949	1,931,757	8,663,442	4.48
1948	1,323,808	5,971,003	5.27
1947	909,964	3,949,419	4.34
1943	1,771	5,319	3.00
1942	104,954	374,718	3.57
1941	1,009,515	2,624,487	2.60
1940	721,732	1,861,638	2.58

^{1/}Cases of various sizes converted to 48 16-oz. cans.

Note: No production in 1944, 1945, and 1946.

was only negligible (1,771 cases); and in 1944, 1945, and 1946 there was no pack of canned animal food from fishery products.



U.S. Production of Marine-Animal Scrap and Meal, 1949

Marine-animal scrap and meal production in the United States and Alaska during 1949 amounted to 237,180 short tons, valued at \$35,652,142 to the producers (table 1). This was an increase of 37,661 tons in quantity and \$12,565,408 in value as compared with the previous year. The quantity of the 1949 production of marine-animal scrap

and meal was exceeded only by the record 1936 yield of 243,778 tons while the value was the highest on record.

Table 1 - Production of Marine Animal Scrap and Meal, 1949 (Quantity and Value to Producers)

Product	Atlantic and Gulf Coasts			Pacific Coast (Including Alaska)			Total			
	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	Avg. Price Per Ton	Quantity	Value	Avg. Price Per Ton	
Meal and Dried Scrap:				Short Tons	\$	\$	Short Tons	\$	\$	
Crab:										
Blue	6,906	431,106	62.42		-	-	6,906	431,106	62.42	
Dungeness	-	-	-	907	47,668	52.56	907	47,668	52.56	
Pur seal	-	-	-	347	55,627	160.31	347	55,627	160.31	
Groundfish ("white fish" inc. rosefish)	31,425	5,221,652	166.16		-	-	31,425	5,221,652	166.16	
Herring	3,049	463,737	152.09	2,249	509,708	226.64		5,298	973,445	183.74
Menhaden	2/113,393	2/17,813,339	157.09		-	-	113,393	17,813,339	157.09	
Pilchard	-	-	-	39,278	6,219,717	158.35	39,278	6,219,717	158.35	
Salmon	-	-	-	1,760	245,847	139.69	1,760	245,847	139.69	
Shrimp	1,283	115,292	89.86		-	-	1,283	115,292	89.86	
Tuna and mackerel	-	-	-	19,139	3,073,742	160.60	19,139	3,073,742	160.60	
Whale	-	-	-	11.7	16,088	137.50	11.7	16,088	137.50	
Miscellaneous	3/12,522	3,795,964	63.87	4/4,805	4/642,655	133.75	17,327	1,438,619	83.04	
Total	168,578	24,841,090	147.36	69,602	10,811,052	157.59	237,180	35,652,142	150.32	

1/ Includes a small production of miscellaneous meal in Minnesota.

2/ A small production of acidulated scrap has been included with dry scrap and meal.

3/ Includes the production of cod-liver press cake, fish pomace, horseshoe crab, and miscellaneous scrap and meal.

4/ Includes the production of anchovy, shark, squid, and miscellaneous scrap and meal.

Manufacture of menhaden scrap and meal, which exceeded 100,000 tons for the second consecutive year, accounted for 48 percent of the quantity and 50 percent of the value of the 1949 production. Although the 1949 production of pilchard meal in California was 20,202 tons greater than in the previous year, it still amounted to only 32 percent of the record 1936 production of 121,739 tons.

Table 2 - Production of Marine-Animal Scrap and Meal, 1940-49 (Quantity and Value to Producers)

Year	Dry Meal and Scrap			Acid Scrap			Total		
	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	Avg. Price Per Ton	Quantity	Value	Avg. Price Per Ton
	Short Tons	\$	\$	Short Tons	\$	\$	Short Tons	\$	\$
1949	1/237,180	1/35,652,142	150.32	1/	1/	1/	237,180	35,652,142	150.32
1948	1/199,519	1/23,086,734	115.71	1/	1/	1/	199,519	23,086,734	115.71
1947	185,808	22,353,488	120.30	632	26,863	42.50	186,440	22,380,351	120.04
1946	197,599	20,360,943	103.04	2,022	78,475	38.81	199,621	20,439,418	102.39
1945	199,118	14,343,138	72.03	1,557	62,200	39.95	200,675	14,405,358	71.78
1944	210,225	15,151,918	71.98	2,922	111,104	38.02	213,147	15,243,022	71.51
1943	188,848	13,570,331	71.86	1,555	58,821	37.83	190,403	13,629,152	71.58
1942	168,486	11,545,239	68.52	2,594	80,520	31.04	171,080	11,625,759	67.96
1941	225,815	12,852,781	56.92	11,029	242,792	22.01	236,844	13,095,573	55.29
1940	177,724	7,562,288	42.55	15,520	271,533	17.50	193,244	7,833,821	40.54

1/ A small production of acidulated menhaden scrap has been included with dry scrap and meal.



U.S. Production of Oyster and Marine-Clam Shell Products, 1949

Production of chicken grit and agricultural lime from oyster and marine clam shells in 1949 totaled 362,028 short tons, valued at \$2,662,252--an increase of 5 percent in quantity and 8 percent in value, compared with 1948.

Crushed shell products were prepared in 4 plants in New Jersey; 3 plants each in Pennsylvania, Maryland, Virginia, and Washington; 2 plants each in Texas and California; and 1 plant each in Florida, Louisiana, and Oregon.

Table 1 - Production of Oyster and Marine Clam-Shell Products by States and Commodity, 1949 (Quantity and Value to the Manufacturer)									
State	Crushed Shells for Poultry Feed			Unburned Shell Lime			Total		
	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	
New Jersey	3,701	\$5,177	14.91	1,011	\$4,685	4.63	4,712	\$59,862	
Pennsylvania and Maryland	28,151	285,405	10.14	14,578	54,101	3.71	42,729	339,506	
Virginia, Florida, Louisiana, and Texas	266,940	1,786,220	6.59	2/19,681	186,193	9.46	286,621	1,972,413	
Washington, Oregon, and California	24,870	266,992	10.74	3,096	23,479	7.58	27,956	290,471	
Total	323,662	2,393,794	7.40	38,366	268,458	7.00	362,028	2,662,252	

1/Marine clam-shell grit was prepared in only 1 plant in Washington.

2/Includes a quantity of burned lime prepared in Virginia.

Average prices per ton for chicken grit from marine shells in 1949 were the highest in history. There was a steady increase in the price of chicken grit from \$3.71 per ton in 1940 to \$7.40 per ton in 1949.

Table 2 - Production of Oyster and Marine Clam-Shell Products by Commodity, 1940-49
(Quantity and Value to the Manufacturers)

Year	Crushed Shells for Poultry Feed			Burned and Unburned Shell Lime			Total		
	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	Avg. Price Per Ton	Quantity	Total Value	
		Short Tons	\$		Short Tons	\$		Short Tons	\$
1949	323,662	2,393,794	7.40	38,366	268,458	7.00	362,028	2,662,252	
1948	296,570	2,140,705	7.22	48,505	333,787	6.88	345,075	2,474,492	
1947	438,629	2,860,175	6.52	62,764	402,983	6.42	501,393	3,263,158	
1946	329,717	1,913,584	5.80	60,716	357,269	5.88	390,433	2,270,853	
1945	369,064	2,001,318	5.42	138,032	572,399	4.15	507,096	2,573,717	
1944	458,080	2,684,306	5.86	124,135	450,390	3.63	582,215	3,134,696	
1943	398,852	2,299,053	5.76	110,433	521,933	4.73	509,285	2,820,986	
1942	345,032	2,028,170	5.88	121,005	554,091	4.58	466,037	2,582,261	
1941	310,834	1,493,720	4.81	127,573	491,533	3.85	438,407	1,985,253	
1940	274,721	1,019,380	3.71	120,367	460,467	3.83	395,088	1,479,847	

Prices paid for agricultural lime from marine shells in 1949 (\$7.00 per ton) were also the highest paid during the past ten years. Agricultural lime prices increased from \$3.83 in 1940 to \$4.73 in 1943, but dropped to \$3.63 in 1944, and then increased steadily to the record-high price paid in 1949. However, production of agricultural lime has shown a steady decline since 1945 and the 1949 production was the lowest for the past ten years.



U. S. Production of Marine Pearl-Shell Buttons, 1949

Production of marine pearl-shell buttons in 1949 amounted to 4,089,712 gross, valued at \$6,782,281 to the manufacturers--a decrease of 18 percent in volume and 21 percent in value, compared with 1948.

Table 1 - U. S. Production of Marine Pearl-Shell Buttons By States, 1949¹/ (Quantity and Value to Manufacturers)

State	Quantity	Total	Avg. Price
		Value	Per Gross
Connecticut	1,118,060	1,786,712	1.60
New York	559,339	1,272,226	2.27
New Jersey	1,290,305	1,898,461	1.47
Pennsylvania and Maryland	972,076	1,723,263	1.77
Iowa	149,932	101,619	.68
Total	4,089,712	6,782,281	1.66

¹/Produced principally from imported shells.

Manufacturers received an average of \$1.66 per gross for their 1949 production, compared with an average of \$1.73 in 1948 and 61 cents in 1940.

Marine pearl-shell buttons were manufactured in 12 plants in New Jersey, 4 in New York, 3 each in Connecticut and Iowa, 2 in Pennsylvania, and 1 in Maryland.



Table 2 - U. S. Production of Marine Pearl-Shell Buttons, 1940-49 (Quantity and Value to Manufacturers)

Year	Quantity	Total	Avg. Price
		Value	Per Gross
1949	4,089,712	6,782,281	1.66
1948	4,974,073	8,587,011	1.73
1947	5,087,000	7,902,000	1.55
1946	3,461,559	5,635,904	1.63
1945	2,398,020	3,286,245	1.37
1944	2,035,520	2,601,626	1.28
1943	2,949,978	3,792,059	1.29
1942	5,564,718	4,532,695	.84
1941	7,424,769	5,337,351	.72
1940	6,830,628	4,140,984	.61

Wholesale and Retail Prices

WHOLESALE PRICES, JULY 1950: Sharp advances in all wholesale food prices were noted during July as compared with the previous month, and edible fishery products followed the same trend. The edible fish and shellfish (fresh, frozen, and canned) wholesale index for July was 97.5 percent of the 1947 average--2.6 percent higher than the previous month and 0.7 percent above July 1949 (see table 1), according to the Bureau of Labor Statistics of the Department of Labor.

From June to July the frozen processed fish and shellfish subgroup index was the only one that dropped. July prices of frozen haddock fillets and shrimp were slightly lower than in June, except for rosefish (ocean perch) fillets, which were only a little higher and flounder fillets, which held steady at June prices. When compared with the previous month, the July price index of frozen processed fishery products dropped 0.6 percent, but it was still 11.1 percent higher than the same month a year earlier.

In general, prices of drawn, dressed, or whole finfish continued to increase (July prices were 2.9 percent higher than for June). From June to July prices of fresh drawn haddock, fresh halibut, yellow pike, and lake trout were higher, while fresh salmon, and whitefish at Chicago and New York City dropped substantially. Prices for this subgroup this July were 15.2 percent higher than in July 1949.

Fresh processed fish and shellfish prices during July were 1.0 percent higher as compared with June and 1.7 percent higher than in July 1949.

GROUP, SUBGROUP, AND ITEM SPECIFICATION	POINT OF PRICING	UNIT	AVERAGE PRICES (\$)			INDEXES (1947 = 100)		
			July 1950	June 1950	July 1949	July 1950	June 1950	July 1949
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)						97.5	95.0	96.8
Fresh and Frozen Fishery Products:						101.4	99.7	92.3
Drawn, Dressed, or Whole Fishfin:						109.1	106.0	94.7
Haddock, large, offshore, drawn, fresh	Boston	lb.	.11	.10	.09	110.1	103.8	83.8
Halibut, Western, 20/30 lbs., dressed, fresh or frozen	New York City	"	.37	.36	.31	107.6	104.9	91.2
Salmon, king, lge. & med., dressed, fresh or frozen	"	"	.45	.47	.44	111.3	114.9	108.3
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.45	.39	.50	98.4	86.2	109.8
Whitefish, mostly Lake Superior, drawn (dressed), fresh	"	"	.33	.39	.32	95.4	112.7	92.5
Whitefish, mostly Lake Erie pound sea round, fresh	New York City	"	.50	.55	.44	111.9	123.5	99.7
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	"	"	.47	.32	.49	110.3	74.1	112.1
Processed Fresh (Fish and Shellfish):						91.0	80.1	89.5
Fillets, whole, 1 lb. skins on, 20-lb. tins	Boston	lb.	.27	.27	.25	97.6	96.6	91.2
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York City	"	.62	.62	.63	89.2	88.7	91.2
Oysters, shucked, standard	Norfolk area	gal.	3.75	3.69	3.50	92.3	90.8	86.2
Processed, Fresh (Fish and Shellfish):						100.8	101.4	90.7
Fillets: Flounder (yellowtail), skinless, 10-lb. boxes	Boston	lb.	.34	.34	.24	109.7	109.7	75.9
Haddock, small, 10-lb. cello-pack	"	"	.25	.25	.19	113.3	114.8	86.5
Rockfish, 10-lb. cello-pack	Gloucester	"	.19	.19	.18	95.0	94.4	90.6
Shrimp, lge. (26-30 count, 5 to 10-lb. boxes)	Chicago	"	.67	.68	.66	91.2	92.4	74.5
Canned Fishery Products:						91.6	87.8	103.8
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case	Seattle	case	16.25	15.08	18.22	106.0	98.3	118.8
Tuna, light meat, solid pack, No. ½ tuna (7 oz.), 48 cans per case	Los Angeles	"	14.45	14.25	15.75	94.0	92.7	102.5
Sardines, Maine, keyless oil, No. 1 oval (15 oz.), 48 cans per case	"	"	5.80	5.50	7.50	64.9	61.5	83.9
Sardines, Maine, keyless oil, No. ½ drawn (3½ oz.), 100 cans per case	New York City	"	6.00	6.20	7.38	58.8	60.8	72.3

1/Corrected price.

Canned fish markets were generally stronger during July, probably influenced to a certain extent by the Korean conflict. The July index for canned fish was 91.6 percent of the 1947 average—4.2 percent higher than June, but still 11.6 percent below July 1949. Prices for canned Maine sardines continued to drop, while prices of all other canned fishery products included in this subgroup were higher in July than in June.

RETAIL PRICES, JULY 1950: Retail food prices rose substantially for the third consecutive month and on July 15 the index was 210.0 percent of the 1935-39 average—higher than in any month since October 1948 (see table 2). This was 4.1 percent above a year ago, only 3.1 percent below the record high of July 1948, and over 44 percent higher than in June 1946.

Table 2 - Retail Price Indexes for Foods and Fishery Products, July 15, 1950, with Comparative Data

Item	Base	Index es		
		July 15, 1950	June 15, 1950	July 15, 1949
All foods	1935-39 = 100	210.0	204.6	201.7
All fish and shellfish (fresh, frozen, and canned)	do	296.6	295.3	307.7
Fresh and frozen fish	1938-39 = 100	275.8	274.1	251.1
Canned salmon: pink	do	325.5	325.3	439.0

The July 15 retail index for all fish and shellfish (fresh, frozen, and canned), was 296.6 percent of the 1938-39 average—0.4 percent higher than in mid-June, but still 3.6 percent lower than on July 15, 1949. Most of the increase was in the prices paid for fresh and frozen fish.

Fresh and frozen fishery products in mid-July retailed at prices that were 0.6 percent higher than in mid-June and 9.8 percent higher than on July 15, 1949.

Only very slight increases were noted in the retail prices of canned pink salmon for July, but these prices were still 25.9 percent lower than in mid-July a year ago.



European Recovery Program Notes

GUARANTIES OF INVESTMENT BY AMERICAN BUSINESS FIRMS: As a result of expanded provisions of the new Marshall Plan law, the Economic Cooperation Administration predicted increased interest in guarantees of investment by American business firms. The new Economic Cooperation Act of 1950 provided greater scope and broadened government protection to private American investment. Businessmen who

invest in or license such intangibles as patents, processes, and techniques to foreign producers in Marshall Plan countries will be able to obtain guarantees of convertibility into dollars of the foreign currency proceeds received from such investment or licenses. Of significance also to investors is the provision which authorizes guaranty against risk of loss through expropriation or confiscation by the participating country. As heretofore, the guaranty provisions do not give coverage against business risks or against exchange fluctuations.



MARSHALL PLAN COUNTRIES ADVANCED TOWARD RECOVERY GOALS IN FIRST QUARTER:

In its eighth quarterly report to Congress, ECA reported that participating countries advanced toward recovery goals on a broad economic front during the first quarter of this year. These Marshall Plan countries continued their progress toward achieving a balance in their international accounts; restoring confidence in their currencies; reducing their import surplus from the United States; rebuilding their critically depleted foreign exchange reserves; and easing trade and payments barriers through cooperative efforts. The devaluation of currencies and the rise of United States business activity has enabled these countries to increase their gold and dollar reserves which had been at critically low levels.

AID TO KOREA: Purchase approvals for the purchase of commodities under the Far Eastern Aid Programs earmarked for the Republic of Korea prior to the Communist invasion have been canceled to permit financing of additional goods vitally needed in maintaining the civilian economy of free Korea, ECA announced on August 21. Probably included in this cancellation was \$1,424,000, which was to be used for the purchase of commodities for the construction of fishing vessels for the rehabilitation of Korean fisheries; and another authorization for technical assistance (including fisheries).

1/ SEE COMMERCIAL FISHERIES REVIEW, JUNE 1950, P. 15.



ECA Procurement Authorizations for Fishery Products -- August 1950

Among the procurement and reimbursement authorizations announced by the Economic Cooperation Administration during August 1950 was \$446,000 for the purchase

Table 1 - ECA Procurement Authorizations for Fishery Products, August 1950

Product	Country of Origin	Recipient Country ¹	Amount Authorized
Canned fish ² /.....	U. S. & Possessions	Belgium-Luxembourg	\$200,000
Canned fish ³ /.....	" "	Greece	230,000
Whale and fish oils ..	" "	France	16,000
Total			446,000

¹The recipient country is the procuring agency, and the Government of the participating country or its authorized agents or importers do the purchasing.

²Except canned shrimp, crab meat, or lobster meat.

³Except canned shrimp, crab meat, lobster meat, or salmon.

Table 2 - Total ECA Procurement Authorizations for Fishery Products,
April 1, 1948 - August 1950/

Commodity	Country of Origin	Recipient Country	Amount Authorized(\$)
<u>FISH (EDIBLE):</u>			
Canned fish	U. S. & Possessions	Belgium-Luxembourg	1,233,000
		Greece	302,000
		Greece-MDAP	120,000
		Ireland	711,000
		Italy	277,000
		Trieste	9,000
		United Kingdom	4,127,000
	Canada (inc. Newf.)	" "	6,636,000
Total canned fish			13,415,000
Salted fish	U. S. & Possessions	Belgium	9,000
	Canada (inc. Newf.)	Fr. West Indies	150,000
		Greece	5,000
		Italy	2,688,000
Total salted fish			2,852,000
Total edible fish			16,267,000
<u>BYPRODUCTS:</u>			
Fish and whale oils ...	U. S. & Possessions	Federal Republic of Germany	774,000
		" (GARIOA)	648,000
		France	39,000
		Netherlands	678,000
	Norway	Austria	1,216,000
		Fed. Rep. of Ger.	2,960,000
	Belgium	" " " "	2,201,000
	Iceland	" " " "	1,693,000
Total fish and whale oils			10,209,000
Fish meal	Canada (inc. Newf.)	Denmark	394,000
	Iceland	Austria	183,000
	Norway and Port.	Fed. Rep. of Ger.	963,000
Total fish meal			1,540,000
Total byproducts			11,749,000
GRAND TOTAL (edible fish and byproducts)			28,016,000

¹Includes latest available revisions. Does not include ECA authorizations under the Far Eastern Aid Program and under which \$219,000 was authorized for the purchase of fish and whale oils by Korea from the United States and Possessions.

of canned fish, and fish and whale oils from the United States and Possessions by France, Belgium-Luxembourg, and Greece (see table 1). No cancellations or decreases affecting previous authorizations for fishery products under the program were reported for the month.

ECA procurement authorizations for fishery products from April 1, 1948 through August 31, 1950, totaled \$28,016,000 (see table 2). Of this total, \$16,267,000 was for edible fishery products, \$10,209,000 for fish and whale oils, and \$1,540,000 for fish meal. Purchases of fishery products made or to be made in the United States and Possessions with these ECA funds amounted to \$8,927,000 or 31 percent of the total (\$6,779,000 was for canned fish, \$9,000 for salted fish, and \$2,139,000 for fish and whale oils).



North Pacific Exploratory Fishery Program

SECOND PHASE OF THIS YEAR'S ALBACORE TUNA EXPLORATIONS BEGUN BY "JOHN N. COBB": In August the Service's exploratory fishing vessel, John N. Cobb, started the second phase of this year's albacore tuna explorations in the North Pacific area, and will operate north of the Strait of Juan de Fuca, principally in Alaskan waters. During the first month of the second phase of the explorations, the John N. Cobb fished in the area from Cape Flattery northward to Cape St. Elias and ranged as far as 500 miles offshore. Although fair catches of albacore tuna were made by the vessel off the Charlotte Islands, British Columbia, only a few tuna were taken in Alaskan waters, apparently because of the very cold water in that area.

The John N. Cobb has continued to have success with gill nets in known tuna areas. Over 164 albacore tuna, weighing up to 34 pounds each, were captured in one gill-net set.

In order to obtain information on the direction and speed of movement of the albacore encountered by the exploratory fishing vessel, the Service's fishery engineers aboard the vessel tagged approximately 400 tuna using the procedure developed by them. The tagged tuna seemed to be in excellent condition when released.

In the first phase of the explorations, the vessel operated mainly in the waters south of the Strait of Juan de Fuca and was successful in locating large concentrations of tuna 485 miles off the Oregon Coast. The vessel followed the migrating tuna as they moved toward the Washington and Oregon Coasts within range of the commercial fleet. Both the John N. Cobb and the commercial fishing fleet made large catches of tuna during June and July.





Australia

AUSTRALIAN SCAD RENAMED JACK MACKEREL: Australian fisheries authorities have unanimously agreed that scad (Trachurus novaezelandiae), formerly known as horse mackerel and cowanyoung, will be renamed jack mackerel, according to the May 1950 Fisheries Newsletter published by the Commonwealth Director of Fisheries.

Since it had been found that the name scad was not entirely satisfactory from a marketing point of view, and since it was very closely related to the California jack mackerel (Trachurus symmetricus), it was believed possible by Australian fisheries authorities that the Australian canned scad would be competing on the same markets with the California fish. It was pointed out that the name jack mackerel would not only have greater appeal on the local market but would also be known on the overseas market.

* * * * *

USE OF REFRIGERATED VESSELS FOR PROCESSING SPINY LOBSTERS: There has been an expansion in Western Australia in the operation and use of refrigerated vessels for processing and storing spiny lobsters, according to a letter received from a correspondent in South Perth. More than 50 percent of the spiny lobster tails exported to the United States from Western Australia are now handled by these factory-type vessels.

During 1949, the Western Australian spiny lobster catch was 5 million pounds, according to official Australian statistics. A large proportion of the catch was processed as frozen spiny lobster tails for the United States market, and a small percentage was canned.

For the fiscal year 1948-49 (ending June 30), the total Australian production of spiny lobsters was 9,433,792 pounds. Of this total, during that fiscal year, Western Australia produced 2,838,012 pounds; Tasmania, 3,233,709; Southern Australia, 2,000,000; New South Wales, 794,855; and Victoria, 567,216. Since the 1949 Western Australian production is given as 5 million pounds, comparison with the 1948-49 fiscal year production of 2,838,012 pounds shows that Western Australia's production of spiny lobsters during the latter part of 1949 increased considerably.

Bermuda

RESTRICTS FISH IMPORTS: Like other countries beset with dollar difficulties, Bermuda is trying to close the gap between its dollar income and its dollar expenditures by restricting its imports from dollar countries, the June 1950 Trade News

of the Canadian Fisheries Department reports. A year ago it put a number of items on a "temporarily prohibited" list and since the devaluation of the pound, these restrictions have been extended. They cover a considerable list of food products, including the following fish items:

- All fresh fish, except for hotels
- All smoked fish, except salmon
- All canned fish



British East Africa (Kenya)

DEVELOPMENT OF COASTAL FISHERIES: For the past two years there has been considerable discussion about the possibility of instituting a full investigation of the marine fishing possibilities of the 1,000-mile coastline between Lamu and Lindi, where there is already a considerable amount of localized native fishing. Previous attempts at deep-sea fishing off the coast have failed, principally, it is thought, through lack of information, a July 18 American consular dispatch from Nairobi reports. East Africa's fish needs are placed at a conservative minimum of 50,000 metric tons a year, and the need to develop the coastal fisheries is as great as that for development of the inland fisheries. Work on the former, however, has lagged behind.

There have been several coastal fishing projects proposed and begun in the past eight months. A South African company announced its intention of basing six 30- to 40-foot Diesel-powered fishing boats at Lamu where the fish would also be dried and cured.

The former East African Supply Board Fishery Station at Shimoni has been sold to a limited company. The company owns 20 native-type boats, three powered fishing boats, and employs 30 fishermen. During the season, over 200 privately-owned boats supply fish to the depot and the supply of fish is approximately a metric ton per day. This fish is frozen, shipped to and sold daily at Mombasa.

New methods of catching crayfish also are being developed here, and next year this company hopes to build fish barricades in shallow water to trap fish during the rainy season.

Another attempt to meet East Africa's fish requirements is being carried out at a marine fish farm near Tanga. This farm of 300 acres, from which may be expected an annual output of between 500 pounds and one metric ton per acre, demonstrates the possibility of this type of development in the vast areas of mangrove swamp up and down the coast.



Canada

REGULATIONS FOR PACKING "SPRING BLOATERS" FOR EXPORT: Canadian fish exporters may continue to ship larger size spring herring outside Canada through regulations announced by the federal Department of Fisheries in its June 1950 issue of Trade News.

The amendment to the "Regulations Governing the Construction of Containers, the Curing and Packing of Fish and the Inspection Thereof" puts on a permanent basis last year's legislation^{1/} which allowed the export, from the 1949 herring pack, of 18-pound boxes of "spring bloater" with not less than 60 and not more than 80 fish.

This legislation is a safeguard to the exporter. It was found that some waste was occurring when packers could not keep within the previously allowed count of 80 to 120 without culling out the larger fish.

1/ SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1949, P. 26.



Chile

COMMITTEE APPOINTED TO DRAFT A NEW FISHERIES LAW: By Decree No. 712 of the Ministry of Economy and Commerce, dated June 15, 1950, a committee of six persons was designated to prepare a draft of a new fisheries law for Chile, a July 27 American consular dispatch from Santiago states. This new law is to replace the present administrative regulations which are derived from Decree-law No. 34 of March 12, 1931, and from the regulations established by Decree No. 1584 of April 30, 1934.

The preamble of the new Decree states that the existing regulations are inadequate to meet the needs of the industry now that the Government is promoting greater fish consumption as a means of increasing the quantity of protein in the national diet.



Denmark

PROTESTS RUSSIAN SEIZURE OF DANISH FISHING VESSELS: An official protest has been made by the Danish Government over Soviet seizures of Danish fishing vessels and over the Russian claim for the extension of maritime jurisdiction to 12 nautical miles, according to an August 4 American consular dispatch from Copenhagen. Should the Danes be denied access to the rich salmon fishing grounds in the Baltic, it will be a serious blow to the Danish fishing industry.



Ecuador

FISH CANNERY PLANS ABANDONED: Ecuadoran hopes that one or more of the three fish cannery projects for which it signed contracts in 1949 would become a reality all but disappeared during the first half of 1950, according to an August 7 American consular dispatch from Quito.

The Walter Von Trescow-Westinghouse Electric International Company plan to establish a cannery with the aid of a \$1,500,000 Export-Import Bank loan was evidently abandoned following the Bank's decision not to advance the desired funds.

Although President Galo Plaza announced on February 25 this year that American and Foreign Enterprises, Inc. had bought complete fish canning installations from a Warrenton (Oregon) cannery company for speedy installation in Ecuador to begin operations in conformity with the contract signed with the Ecuadorian Government in 1949, it subsequently became evident that an essential loan of \$350,000 from the International Bank for Reconstruction and Development had a drawback--a condition (which could not be fulfilled) that Ecuador must first settle its debt to bondholders of the Southern Railway. President Plaza evidently felt that to come to an arrangement with the bondholders (mostly British) would under the circumstances be a bad move, especially from a political point of view.

The third project sponsored by Inepaca (Industria Ecuatoriana de Productos Alimenticios Compania Anonima), Ecuadorian subsidiary of a San Diego (California) company, was abandoned early in May, presumably because necessary capital was not available from the parent company.

PROPOSED REVISION OF FISHING LAWS: Proposed revision of Ecuador's fishing laws received considerable attention from American fishing interests and Ecuadorian authorities during the first half of 1950 and it is deemed likely that Congress, when it convenes in August, may make some changes in existent statutes.



German Federal Republic

OLD TRAWLERS TO BE SCRAPPED: Seven trawlers, most of which are over thirty years old, are being scrapped by their Bremerhaven owners because of high operating costs. These are the first trawlers scrapped since World War II, and it is expected that others will follow, an August 1 American consular dispatch from Bremerhaven states.

Until April 1950, trawlers over 29 years old and those possessing certain uneconomic features, were allowed subsidies from an Equalization Fund collected on the fish auctioned. The removal of these subsidies and the low market price for fish has necessitated the scrapping of some of these old vessels.

MECHANICAL REFRIGERATION FOR TRAWLERS: An increasing number of new trawlers in the German Federal Republic are being equipped with mechanical refrigeration. The popularity of this feature stems, to a large extent, from the success which its operation has shown on the fishing trawlers on charter from the United States. Mechanical refrigeration was installed on a few German trawlers before World War II but did not give satisfactory service and was not generally adopted. However, developments embodied in the American equipment have overcome previous objections and demonstrated the practicability of the system.



Iceland

EXPANSION OF THE ROSEFISH FISHERY: During June and July this year, several Icelandic trawlers have been engaged in fishing for rosefish (redfish), states a July 21 American consular report from Reykjavik. Several of the trawlers made unusually large catches--approximately 500 metric tons of rosefish per trip (of 7 to 10 days). However, up to the present time, the fishing for rosefish has played an insignificant part in the Icelandic economy.

Prior to the war, small quantities of rosefish were sold to the United Kingdom. In Central Europe and in the United States, the fish are sold filleted. Several quick-freezing plants in Iceland have filleted small quantities of rosefish which will be exported to the United States. However, the major part of the rosefish catch goes to fish meal factories where it is ground into meal. The fish likewise yields a small amount of rosefish oil, and the rosefish liver is also considered to be much richer in vitamins A and D than some other livers.

Off the coast of Iceland there are two species of rosefish--a small variety and a large variety. The latter, which is considered to be of more importance to Iceland, is located off the coastal shelf in depths ranging from 200 to 500 meters (109-273 fathoms). On the other hand, the small rosefish is located in shallow waters or on the continental shelf. These two species look very much alike and are distinguishable only by their difference in size. A third type of rosefish is found in the western North Atlantic off the American coast and is caught mainly by American vessels.

According to a Scandinavian fish specialist, A. Vedel Taning of Copenhagen, "the redfish (rosefish) fry per square kilometer amounts to approximately half a million, considering only fry found down to a depth of 50 meters (27 fathoms). When it is known that spawning areas extend over 2½ million square kilometers, one must be able to imagine the abundant quantities of redfish in the sea. Everyone who has investigated cod and herring spawn in the limited spawning areas off the coast of Iceland and in the North Sea will be convinced, when finding those great quantities of redfish fry, that the number of redfish in the sea must by far exceed the two other species. These species amounted to 65 percent of the total catch landed in North Europe during the years 1934 to 1938. There is no doubt that the redfish will prove to be a reserve for the fishing nations when depletion of sea life begins to affect other commercial fish. Definitely, within a short time, appropriate methods will be found to utilize this resource."



India

DEVELOPMENT OF FISHERIES: During the last few years, the Government of India and a number of State Governments have taken up the development of fisheries mainly with a view to supplementing the diet of the people which, in the majority of cases, falls below minimum nutritional standards, according to an August 15 release from the India Press Information Bureau supplied by the American Embassy at New Delhi.

Fish production in India is estimated at 513,760 metric tons per year--two-thirds of this amount consists of sea fish. Per capita consumption is estimated at 3.4 pounds per year, which is much less in comparison to the standard prevailing in other countries. Experts have calculated that the present production of fishery products must be increased at least ten times if the people of India are to derive substantial nutrition from this important animal protein food.

Plans for Development of Fishery Resources: Development of fishery resources is being undertaken both in inland and marine waters. There are a large number of tanks, ponds, rivers, backwaters, etc., in inland areas of India which can yield substantial quantities of fishery products. In addition, India's extensive coast line should provide a substantial amount of marine fishery products if exploited with proper equipment and skilled personnel.

Fishery schemes have been included within the scope of the "Grow More Food Campaign" of the Government of India and special financial assistance has been given to the individual states. Till now, about 50 plans have been launched. There has been an increase in the production of fishery products as a result of the implementation of these schemes, and it has been estimated that there will be a greater increase by the end of 1951-52.

Inland Fisheries: Most of these plans to date have stressed the development of inland fisheries and aim at:

1. Collection and distribution of fry of carp and other fast-growing species of fish for stocking in inland waters. Arrangements have been made whereby States having a surplus of fry and fingerlings will supply these to deficit States.
2. Improvement in the quality of cured fish and prawns (shrimp) by providing better facilities at fish-curing yards. (Salt is being supplied at subsidized rates under the "Grow More Food Campaign." The fish-curing yards at Bombay have recently been improved and the Government of Travancore-Cochin Union have set up a model fish-curing yard with financial assistance from the Central Government).
3. Better utilization of the present production of fishery products by more efficient methods of preservation, transportation, and marketing.
4. Utilization of fish waste for the manufacture of fish meal for feeding and fertilizer.
5. Establishment of cooperatives for fishermen. At present, the fishermen's economic condition is poor and the equipment used is not efficient enough. The cooperatives which are being encouraged seek to improve the fishermen's economic condition by providing the necessary credit to buy efficient fishing gear and equipment to increase their catch.

Deep-Sea Fisheries: While the development of inland fishery resources is expected to yield considerable return, the large gap between production and requirements can only be made up by the exploitation of India's extensive marine resources. India has a coast line of about 2,900 miles, while the area of the continental shelf (from the coast to the 100-fathom line) is over 115,000 square miles. Fishing in Indian seas is, however, confined to a narrow coastal belt of five to seven miles only. This is largely because the equipment used for sea fishing consists mostly of small boats, canoes, catamarans, and of small nets and tackles which are not of a type which can stand the rigours and requirements of offshore or deep-sea fishing.

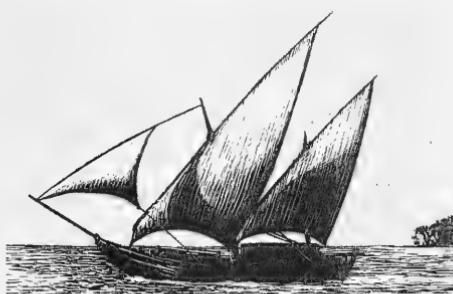
Since the collection of exploratory fishery data can only be undertaken at the Government level, for the last few years the Government of India has started exploratory deep-sea fishing at Bombay. Pilot-scale operations were first started on an experimental basis with the steam trawler Meena obtained from the Disposals Directorate. However, since the running and maintenance expenses of this vessel were unduly high, last year the Government obtained two Danish cutter-trawlers from Holland and two specially made boats from the United Kingdom. These boats have been going out to sea since the winter of last year and have collected valuable data on fishing grounds, the nature of fish likely to be available at particular depths of water, details of fishing seasons, underwater conditions, etc. In addition, substantial quantities of fish have been caught.

The two Danish cutters (Ashok and Pratap) are steel vessels, with an overall length of 85 feet, and fitted with 240 b.h.p. Diesel engines. These vessels have completed 44 trips (average trip lasted a week) from November 1949 to June this year.

The other two vessels from the United Kingdom (Bumili and Champa) completed 62 trips from the winter of last year up to June this year. Trips usually lasted 3 to 4 days, but some were only 1 day long.

Training and Research: Arrangements have also been made by the Government of India for training sufficient skilled fishery personnel. Two training classes

were started—one for inland fisheries and the other for marine fisheries. More than 100 candidates have been trained so far as a result of these training courses and the personnel trained are now mostly employed in fishery development work in different parts of the country.



TYPICAL FISHING VESSEL OF INDIA.

tical training for two years on the Government of India's fishing vessels at Bombay. Some of the trainees have successfully completed their course and have now been employed as petty officers on the fishing vessels operating in Bombay.

To undertake research on problems connected with India's fisheries, two Fisheries Research Stations have been started by the Government of India for biological, technological, and hydrological investigations. The station which deals with marine fisheries is located at Mandapam, Madras, and the other on inland fisheries at Pulta near Calcutta.

In addition to pilot deep-sea fishing, which the Central Government has undertaken, some of the maritime states of India have also entered this field. In Madras, offshore fishing has been tried for several years now, but the vessels and equipment used need considerable improvement. The West Bengal Government is presently pursuing a plan to undertake deep-sea fishing in the Bay of Bengal. Recently, an officer of this State Government accompanied by the Fisheries Development Adviser of the Central Government proceeded to Denmark to purchase suitable fishing boats and recruit some skilled personnel for the West Bengal project. It is understood that the Danish experts are expected to arrive at Calcutta in November this year and will train local personnel in deep-seafishing operations. A West Bengal official source maintained that experiments conducted in 1949 had shown good prospects for deep-sea fishing.



Japan

POLICY GOVERNING EXPANSION OF JAPANESE FISHING AREA: The Government of the Commonwealth of Australia, in a note dated June 30, 1950, stated that the Australian Government feels the newly-authorized Japanese tuna fishing operations¹/ will interfere with fisheries in New Guinea which the Australian Government is encouraging, and that the new Japanese fishing operations are not for the purpose of feeding the Japanese people but for obtaining fish for export. Accordingly, the Australian Government requested reconsideration of the order in question with the view of placing the southern boundary of Japanese tuna fishing operations at

16° N. latitude instead of the equator, states a July 27 American consular report from Tokyo.

SCAP's reply of July 22, 1950, advised the Australian Government that the Supreme Commander, while supporting the broad principles of legitimate conservation measures, could not concur in the exclusion of Japanese fishermen from large areas of the high seas for conservation reasons, or in order to protect any nation from reasonable competition, in cases where Japanese have previously engaged in fishing and where the resources are not being fully utilized. The reply also pointed out that the operations authorized by SCAPIN 2097^{1/} do not constitute an extension of the present fishing area, but provide for a specific type of fishing under the supervision of a representative of the Supreme Commander, and it is accordingly believed that such specific fishing operations will no more interfere with fisheries encouraged by the Australian Government than would similar operations by any other nation's fishermen. The reply further noted that the "Statement of United States Policy with Respect to Fishing and Aquatic Industries in Japan", also known as FEC-035, in enunciating general principles for the guidance of the Supreme Commander during the Occupation, states that Japan should be permitted to engage in deep-sea fishing to provide food for domestic needs and to secure foreign exchange for essential imports. Accordingly, the Supreme Commander cannot consider the question of domestic or export uses of marine products as a criterion in determining any limitations to be placed on Japanese fisheries, and therefore does not feel there is any necessity to amend SCAPIN 2097.^{1/}

1/SEE COMMERCIAL FISHERIES REVIEW, JUNE 1950, PP. 52-4.

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CANNED CRAB MEAT PROSPECTS FOR 1950: Exports: The Japanese Ministry of International Trade and Industry anticipates that Japan will be able to export 80,000 to 100,000 cases (48 No. 2 cans, 6½ oz. each) of crab meat during 1950, depending on the year's catch. Stocks existing at the beginning of 1950 were negligible, according to a June 26 dispatch from the Office of the Political Adviser in Tokyo.

Production: Total pack in 1950 will be between 100,000 and 120,000 cases. Most of this production will be shipped to the United States. Only meat rejected for export because of its quality will be consumed in the domestic market, and this is expected to be about 20 percent of the total pack.

Canning Seasons: The first crab canning season starts in April each year and continues through May, with some operations during June and July. The second season starts in August and lasts through October, with no activity for the remainder of the year. The pack estimate for the April-May 1950 season is 50,000-60,000 cases; August-October 1950 season, 30,000-40,000 cases. Shipments to the United States are usually made in the two months subsequent to each production period, so that the bulk of Japanese canned crab meat is exported during the latter half of each year.

Prewar Canning Capacity: Production of crab meat in 1939 was 598,598 cases (48 No. 2 cans of 6½ oz. each). See first table on p. 48.

Canning Capacity Transferred to U.S.S.R.: Reportedly, a crab meat canning capacity of about 143,000 cases per year (on the basis of the 1939 production for the Kuriles and Kamchatka) was transferred to the U. S. S. R. Since some of the

Japanese Prewar Canning Capacity, 1939		
Variety	Amount Packed	Location of Canneries
King crab	Cases ^{1/}	
	253,596	Floating canneries
	63,329	Kuril Islands
	79,979	Kamchatka
	126,596	Hokkaido
Total	523,500	
Hanasaki crab ..	42,706	Hokkaido
Kegani crab	52,392	Korea
Grand total ...	598,598	

1/48 No. 2 cans of 6½ oz. each.

floating canneries had operation bases in Kamchatka, however, it is estimated that the capacity taken over by the U.S.S.R. actually amounts to nearly 200,000 cases per year. There are no floating crabmeat canneries at present in Japan.

Present Japanese Canning Capacity: The remaining canneries located in Hokkaido were fully renovated in 1948, and their installed cannning capacity is reportedly about one million cases per year. There are now 39 canneries located in Hokkaido, with the Nemuro, Wakkanai, and Kushiro districts being the principal centers of production, and no cannery has been reported as having closed since 1948. Because of the present limitations to the fishing area, however, the expected packing program represents only 10 percent of the installed capacity.

In view of the highly seasonal nature of this industry, operators of these canneries are endeavoring to produce canned salmon, mackerel, shellfish, and other canned fishery products in order to fill the gap during dull or off-seasons.

No additions have been made to Japan's crab cannning capacity since the end of World War II.

Costs of Production: Estimates on the average production costs per case, as based on information obtained from the Japanese Ministry of International Trade and Industry, the Japanese Canned and Glass Jar Foods Association, and Nichiro Fisheries Company, Ltd., are as follows:

Average Costs of Production of Canned King Crab Meat, Fancy Grade (Unit: Per Case of 48 6½-oz. cans, in U. S. dollars)	
Raw materials	\$ 9.73
Cans	2.98
Labor	2.22
Fuel, packing, overhead, and profit	1.74
Production costs ex-cannery	16.67
Island freight and insurance33
Warehouse and loading charges; etc., incurred at port of shipment58
Exporter's commission42
F.O.B. price	18.00

Manufacturers are reluctant to divulge the breakdown of the cost constituent "fuel, packing, overhead, and profit." Production costs vary according to different operators, the location of canneries, and other factors, but it is believed that producers' profits average only about 3 percent of the f.o.b. price.

Prices: Until recently, the f.o.b. price of Japanese canned crab meat, fancy grade (representing the best quality), was \$19.00 per case (48 6 $\frac{1}{2}$ -oz. cans), the second quality being \$1.00 cheaper. Because of the competition from Russian canned crab meat in the United States, exporters are now quoting \$18.00 to \$18.50 per case f.o.b. Japan. The Japanese Ministry of International Trade and Industry has received a report to the effect that Russian canned crab meat is being sold at \$34.50 per case (96 7-oz. cans) f.o.b. Vladivostok and that British firms are offering what is presumably Russian crab meat at \$47.00 per case in Los Angeles. Therefore, the Russian product reportedly is underselling the Japanese by \$3.00 per case.

The price in the United States of the Japanese crab meat is calculated roughly on the following basis:

F.O.B. price	\$19.00 per case
Freight and Insurance	1.00 " "
Customs duty at 22.5 percent	
ad valorem	4.27 " "
Cost laid down in U. S.	<u>24.27</u> (sold at \$25.00)

* * * *

REDUCTION OF EAST CHINA SEA FLEET:^{1/} As a first step in the implementation of the Law for the Prevention of the Exhaustion of Marine Resources, which was enacted by the Japanese Diet on May 1, 1950, the Minister of Agriculture and Forestry has taken action affecting the operation of 173 vessels of the East China Sea trawl fleet. The Minister cancelled the licenses of 62 bull trawlers and one otter trawler and restricted the operations of 110 bull trawlers effective July 10, 1950, the July 22 Weekly Summary of SCAP's Natural Resources Section reports.

A public hearing was held in Tokyo on June 8, 1950, at which results of preliminary research on the trawl fisheries in the East China Sea were made public. It was determined on the basis of this research that bull trawlers permitted unrestricted operations in the East China Sea within the area prescribed by SCAP should be limited to 600 vessels, and otter trawlers to 50 vessels. At this hearing, the Fisheries Agency presented a plan establishing standards for selection of vessels, the operation of which would be either curtailed or restricted.

This plan was accepted at the hearing, and thereafter the Fisheries Agency selected the vessels and operators to be affected.

Thirteen of the bull trawler licenses were cancelled for inefficient operation; 7 were licenses of vessels sunk in Japanese waters; 34 were licenses cancelled on the percentage bases; and 8 were bull trawler licenses cancelled in lieu of 4 otter trawlers. Sixteen operating companies were affected. Effective July 10, the operation of 110 bull trawlers of less than 50 gross tons were restricted to the area bounded by Longitude 130° E., Longitude 127°30' E., and Latitude 25° N., excluding the Sea of Japan north of Latitude 36° N.

As of July 1, the Fisheries Agency has suspended operation of 26 bull trawlers suspected of violation of the provisions of SCAPIN 2046. The licenses of 17 of these vessels reported beyond the limits of the authorized fishing area by Allied authorities or by the Japanese Fisheries Inspection System were cancelled by administrative action prior to trial. The licenses of seven vessels reported outside the area were voluntarily surrendered by their owners.

^{1/}SEE COMMERCIAL FISHERIES REVIEW, JUNE 1950, P. 57.



TYPICAL BULL TRAWLERS OPERATED IN PAIRS BY JAPANESE FISHERMEN IN THE EAST CHINA SEA DOCKED AT FUKUOKA, KYUSHU, JAPAN. BUILDING IN BACKGROUND IS A COLD STORAGE PLANT.

The Fisheries Agency, Ministry of Agriculture and Forestry, is presently negotiating with the Ministry of Finance to determine the amount of compensation to be paid to operators who have lost licenses under this reduction program. No compensation will be made to operators whose vessels have been merely restricted in operation, nor to owners whose vessels have been reported in violation of SCAP directives.



Mauritius and Seychelles Islands

SURVEY OF FISHING BANKS COMPLETED: A survey of the fishing banks between the Seychelles and Mauritius, which was begun in 1947, was concluded in December 1949 when the vessel that made the survey (the Research) tied up at Zanzibar, a July 10 American consular dispatch from Mombasa reports.

In the preliminary report, J. F. G. Wheeler, Marine Biologist, who conducted the survey, points out that the fishing banks of the Western Indian Ocean have been known by repute for many years but practical men were not prepared to make large-scale capital investments. Pelagic fishing was the practice round Mauritius by professional and amateur fishermen and was quite successful at certain times of the year, but the Island's markets depended principally on the steady supply of bottom fish.

In 1946, grants from the British Colonial Development and Welfare Fund provided for a research ship, with the necessary equipment and gear, and running expenses of a scientific staff and crew for two years.

The most important area covered by the Mauritius-Seychelles survey was "the Seychelles Plateau, less than 40 fathoms deep and roughly 10,000 square miles in area, from which emerge the islands of the Seychelles group; and the chain of submarine banks—the Constant, the Fortune, the Saya de Malha, the Nazareth, and the Soudan, with a total area of about 23,000 square miles—which stretch in an arc to Mauritius, rising steeply from the ocean floor, a thousand miles away to the south." The banks are noted for their bottom or ground fish.

The Research fished on all these banks and off most of the islands. Data was obtained on more than 6,000 fish and 1,100 sharks; average rates were established for fishing in terms of metric tons per man per year on a basis of 240 days of 6 hours actual fishing time.

According to the Marine Biologist, the best catches were made in depths between 8 and 32 fathoms. "Over-all rates of fishing were 17 metric tons per man per year for fish and $2\frac{1}{2}$ tons per man per year for sharks, all taken by hand lines from the drifting research ship. These figures combined give a rate of 5,936 pounds per 100-hours fishing for a single line." He compares these figures with trawlers working the North Sea area with an average of 10,080 pounds per 100-hours fishing per ship.

From statistics of catches available, the average annual catch in normally-fished Mauritius waters was calculated at about 12 metric tons per square mile. Because the legal methods of capture did not damage the grounds, the same quantity should be available every year in years of normal spawning survival. But the actual commercial annual catch per man per year was 1.30 tons at Mauritius; at Rodrigues, 1.48 tons; and for the Seychelles, 1.57 tons.

The commercial rate found at the Seychelles plateau during Wheeler's visit there at the end of 1945 was $16\frac{1}{2}$ tons per man per year, inclusive of sharks. Exclusive of sharks, this rate should be 7.5 tons per man per year.

Although he realizes that the fishable area of the banks is far less than their charted area, he states that the "density of the fish population is about four times greater than that calculated for the Mauritius inshore fishery, so that the reduced area of about 11,000 square miles, plus the plateau of the Amirante Islands (Seychelles' dependencies) and the rich banks of the Chagos Archipelago (Mauritius' dependency)—together about 3,200 square miles—should be capable of a total annual production of 520,000 metric tons."

Mexico

FISHING TREATIES CONTEMPLATED BY MEXICO: Studies relative to treaties between Mexico and the United States and between Mexico and Cuba have been completed by the Mexican Directorate General of Fisheries, according to an article appearing in the newspaper El Universal of July 5, 1950, and as reported by a July 7 American Embassy dispatch from Mexico, D. F.

The article states that "the majority of the fishing boats which come to our coasts are from the two mentioned nations. Therefore it is considered necessary to establish treaties principally with these countries so as to have clearly specified the obligations which the foreign fishermen undertake and the responsibilities which they incur by not subjecting themselves to Mexican fishery laws and their regulations. In this way the existing confusion which gives place to disagreeable incidents will be eliminated."

The projected international treaties have been sent by the Mexican Ministry of Marine to the Ministry of Foreign Relations.



Norway

NYLON TRAWL NET TESTED: Experiments with a nylon Swedish-type trawl were carried out in the herring fisheries on the Fladen Grounds by the Norwegian Fisheries Department, according to the June 24 issue of The Fishing News. The conclusions were that the catch was about four to five times as large as the catches made with ordinary cotton trawls, in spite of the fact that the type of net was exactly the same.

The explanation may be that since nylon is lighter than the ordinary trawl material and does not absorb water, the upper part of a nylon trawl floats more easily. In addition, nylon is smoother than ordinary material and is believed to offer less resistance when dragged through the water. For these reasons, it is likely that the nylon trawl keeps a larger opening than the ordinary trawl. The nylon trawl was found easier to drag and seemed much stronger than trawls of ordinary material.



Pacific South Sea Islands

DIFFICULTY IN CATCHING FISH IN QUANTITIES HINDERS DEVELOPMENT OF TUNA INDUSTRY: Tuna fishing and canning operations at Fiji Islands and American Samoa/ have not met with any success to date because in that area of the South Pacific, of which Fiji is the center, it has not been possible to catch tuna in quantities by methods used in other Pacific waters. Two companies were established last year, one in the Fiji Islands to fish for tuna in Fijian waters and one to can the tuna in American Samoa. The Senirosi, one of the Fiji company's vessels, is now reported trying out a purse-seine net (1,800 ft. long and 180 ft. deep) somewhere in the Yasawa group, according to the July 1950 Fisheries Newsletter of the Australian Director of Fisheries, which quoted the Sydney journal, Pacific Monthly.

The tuna cannery at Pago Pago, Samoa, was to be opened the beginning of this year and all preparations were completed, reports the Apia (Samoa). However, since large concentrations of tuna could not be found, the factory has not received any fish and up to the present, the cannery has still not started work.

The Fiji tuna fishing company is now looking for new waters in which to search for tuna. Permission has been granted to the company to conduct an exploratory

1/SEE COMMERCIAL FISHERIES REVIEW, FEBRUARY 1949, PP. 58-9.

survey in Samoan waters with a view to ascertaining the seasonal movement of fish, particularly tuna. But in May, it was reported that the situation had not improved. This company now proposes to test live-bait pole fishing in Australian waters.



Peru

FISH MARKETING SITUATION:^{1/} Deficits in meat production have added to the historical importance of fish in the Peruvian diet, reports Robert O. Smith, U.S. Fish and Wildlife Service representative, who made a survey of South American markets for United States fishery products. However, it does not follow, that any sizable market exists for imported fishery products. On the contrary, it seems certain that Peru will continue to be an exporter of frozen and canned fishery products, and its imports will reflect consumer taste preference (salmon and sardines, for example) rather than supplementary protein for the diet.

The Republic of Peru has a population of 7,726,000 (1948 estimate) and an area of 482,258 square miles. Its coastline extends for about 1,400 miles along the Pacific. Due in part to the Humboldt current, the coastal waters are rich in fish life. Even prior to the establishment of the Inca Empire, fishing was actively prosecuted with more or less the same kind of small craft and nets used today.

Table 1 - Peru's Production of Fish Products, 1939-49

Year	Quantity	Year	Quantity
	Metric Tons		Metric Tons
1949	45,260	1943	26,725
1948	35,944	1942	21,063
1947	30,778	1941	11,889
1946	27,657	1940	6,404
1945	31,958	1939	4,849
1944	30,268		

Since most Peruvian fishery products are sold by pieces rather than by weight, the catch statistics are necessarily estimates, and usually on the conservative side. The catch has increased nearly ten times within the 11-year period, 1939 through 1949, to a total of 45,260 metric tons (table 1). There is no evidence that any species is being overfished, and actually the catch may be expected to increase within the limitations of preservation and distribution facilities.

For the most part, canning of tuna and bonito for export has been a postwar development which has not yet reached its potential output. The two species do not show much overlapping in distribution. Yellowfin tuna are taken in both northern and southern Peru throughout the year, but are not common inshore along the central coastal area. On the other hand, bonito (*Sarda chilensis*) are abundant along the central coast from November through March, but seldom taken in the extreme north or south. In 1949, about 500,000 cases were exported (80 percent bonito and 20 percent tuna).

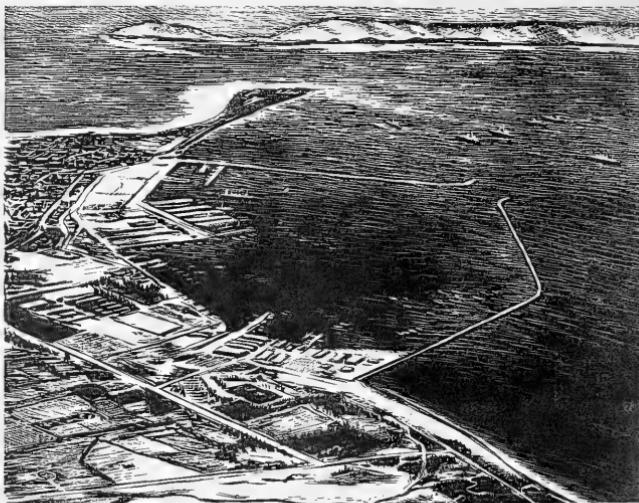
^{1/}THIS IS THE TENTH REPORT IN A SERIES TO GIVE INFORMATION ON CURRENT AND POTENTIAL MARKETS FOR UNITED STATES FISHERY PRODUCTS IN SOUTH AMERICA. MILTON J. LINDNER AND ROBERT O. SMITH, UNITED STATES FISH AND WILDLIFE SERVICE REPRESENTATIVES, WERE IN SOUTH AMERICA IN JUNE INVESTIGATING MARKETS IN CONNECTION WITH A SURVEY SPONSORED COOPERATIVELY WITH THE U. S. DEPARTMENT OF AGRICULTURE'S OFFICE OF FOREIGN AGRICULTURAL RELATIONS. MORE DETAILED REPORTS WILL BE ISSUED AT A LATER DATE AS FOREIGN MARKET CIRCULARS AND WILL BE AVAILABLE FROM THE BRANCH OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. THE ANNOUNCEMENT OF THIS STUDY APPEARED IN COMMERCIAL FISHERIES REVIEW, JUNE 1950, P. 18, THE FIRST REPORT IN THIS SERIES ON THE ARGENTINE REPUBLIC ON PP. 33-4 OF THE SAME ISSUE; THE SECOND ON THE NETHERLANDS WEST INDIES APPEARED IN JULY 1950, PP. 46-7; AND OTHERS APPEARED IN THE AUGUST 1950 ISSUE AS FOLLOWS: THE THIRD ON URUGUAY, PP. 61-2; THE FOURTH ON PARAGUAY, PP. 52-3; THE FIFTH ON BRAZIL, P. 41; THE SIXTH ON BOLIVIA, PP. 39-40; THE SEVENTH ON SURINAM, PP. 57-8; THE EIGHT ON VENEZUELA, PP. 62-3; AND THE NINTH ON CHILE, PP. 43-4.

Peru's exports of fishery products have been steadily mounting during the past four years. There has been an increase in the shipments of canned fish, frozen fish, and fish meal (table 2).

Product	Table 2 - Peru's Foreign Trade in Fishery Products, 1946-49 ¹							
	1949		1948		1947		1946	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
(in metric tons)								
Canned Fish.....	20.1	6,198.6	82.0	4,871.9	210.2	4,617.9	50.6	2,652.5
Frozen Fish: ..	-	2,611.5	-	711.9	-	-	-	-
Swordfish ...	-	1,314.3	-	414.5	-	-	-	-
Tuna	-	1,217.3	-	288.8	-	-	-	-
Dried Fish	12.8	6.9	2.0	8.2	29.5	45.2	74.3	22.6
Fish Meal	-	2,708.4	-	675.3	-	473.7	-	-
Fish Livers ...	-	8.4	-	78.1	-	475.9	-	553.7
Total	32.9	14,065.4	84.0	7,048.7	239.7	5,612.7	124.9	3,228.8

¹/Statistics from Dirección de Pesquería y Caza, Ministry of Agriculture.

In the 5-year period, 1935 through 1939, the annual importation of canned and dried fish averaged 2,240,000 and 665,000 pounds, respectively. The United States supplied an average of 843,000 pounds of canned fish (sardines and salmon) and 117,000 pounds of dried shrimp annually. Total imports from the United States in 1948 amounted to only 185,000 pounds; and in 1949, 73,000 pounds. This decline was accelerated by shortages of dollars.



CALLAO -- ONE OF THE PRINCIPAL FISHING PORTS IN PERU.

Almost every small food shop carries canned fish, usually consisting of the following four styles of pack: sardines in tomato paste (1-lb. flat oval); bonito, "salmon" style (1-lb. tall); bonito in oil (7-oz. round); and bonito in tomato sauce (1-lb. tall). Turn-over is slow, and in the absence of accurate figures, it is estimated that canned fish consumption within the country does not exceed 50,000 cases annually. Retail prices for bonito in oil (7-oz. round) average about 15 cents (U. S. currency equivalent).

Peru's consumption of frozen fish in 1950 (mostly swordfish) will only be about 220,000 pounds. This is due to a variety of causes, which will require some years to obviate. First, is lack of adequate transportation; second, is the relatively few outlets for distribution of frozen fishery products. Peru has developed so rapidly during the past two years that railroad and highway transportation, production of electric power, industrial and domestic water supplies, and telegraph and telephone communication have not been able to expand with sufficient rapidity. These factors, rather than productive capacity, have limited expansion of the frozen fish business.

Although the Peruvian economy has strengthened considerably with respect to dollar balances during the past fiscal year, it seems unlikely that any sizable import permits will be issued for purchasing fishery products when construction materials, machinery, and farm implements are so urgently needed. Also, sterling balances can be used more conveniently for the purchase of sardines, dried cod, and other desired products from Spain, Italy, France, and Norway.



Surinam

IMPORT TARIFF ON CERTAIN FISHERY PRODUCTS RAISED: The Surinam (Dutch Guiana) import tariff on certain luxury articles (including certain fishery products) was raised by 10 percent of the value, according to a July 24 American consular report from Paramaribo. Fishery products on the published list include caviar, fresh fish (including shellfish), canned smoked salmon, smoked eels, eels in jelly, and canned shellfish.



Thailand

FISH AN IMPORTANT SOURCE OF FOOD: Fresh-water fish constitute an extremely important source of food supply throughout the central region¹ of Thailand, an August 3 Bangkok consular dispatch reports. Fish for food are taken from every stream, canal, lake, and swamp. As flood waters begin to recede after the rainy season, fishing activities assume almost frenzied proportions as the farmers attempt to salvage every fish, crab, and shrimp that is left behind in the dried-up streams, canals, and swamps. Some local fish varieties are able to bury themselves in the mud as waters recede. These burying species are often captured when they return to the surface after a heavy rain, or small tracts are artificially flooded to secure the same result. Artificial fish ponds are common throughout the region, fish being taken under village rules which fix the day upon which certain groups of villagers are permitted to make a mass attack upon specified ponds.

All kinds of nets, seines, and traps are used for the taking of fish, and practically every rural home is equipped with fishing apparatus of various types. Where a perpetual water supply is available, fresh fish are taken daily to meet family requirements. Where water supplies are variable, fishing activities are ¹/EXCLUDES FOUR SOUTHEASTERN PROVINCES. THE CENTRAL REGION OF THAILAND COMPRIMES ONE-FIFTH OF THE TOTAL AREA OF THE KINGDOM, BUT SUPPORTS NEARLY ONE-THIRD OF THE ENTIRE POPULATION. THE CENTRAL REGION HAD A 1947 POPULATION OF 5,387,604, WHILE THE ENTIRE KINGDOM'S POPULATION WAS 17,317,742.

organized by seasons, and when the catches are large, all surpluses beyond immediate needs are dried, salted, fermented into fish sauce, boiled for extraction of fish oil, or the living fish are kept in small ponds until needed.

Fresh and preserved fish of all kinds are a prominent feature in every village market. In addition to supplying local needs, considerable quantities of fresh-water fish are shipped from rural areas to the Bangkok market. Itinerant buyers circulate throughout the Central Region picking up surplus supplies wherever found.



United Kingdom

IMPROVED TYPE OF RADIO BUOY FOR FISHERIES: A new type of radio buoy has been developed by a Scottish firm for use by fishing vessels to prevent the loss of costly gear, reports the July 22 issue of The Fishing News, a British fishery periodical. This buoy could be used also as a guide to shipping at harbor entrances during foggy weather. A subsidiary company has been formed for the manufacture and export of these radio buoys to the United States and Canada.

The British Ministry of Fisheries experimental trawler Ernest Holt has tried the radio buoy in every conceivable way and in almost every type of weather. The fishery cruiser Minna is carrying out experiments with a radio buoy on the west coast of Scotland with the object of finding out its possibilities with radar. A special feature of the radio buoy is that each one is made so that it can only use the call signal of the vessel to which it belongs. Two Aberdeen fishing vessels are operating radio buoys.

The lower section of the buoy is made up of a cylindrical container housing a low-power radio transmitter and control equipment, and a cone. These two parts form a watertight joint, and all normal functions of switching, tuning, etc., are carried out through a four-inch porthole in the wall of the cone. The upper section consists of a hollow mast which is surmounted by a composite light and aerial insulator. The lower section contains the battery, which is the primary source of power. A 6-foot balance keel with a swivel lock of special design is fitted to the base of the lower section, prior to launching the buoy.

The radio transmitter, which has a nominal range of 25 miles for a period of 60 hours when fully charged, operates on a frequency within the Marine Communications Band. The control equipment centers around a 15-day time switch which places the transmitter in operation, keys the transmitter with the call sign of the parent vessel, and switches the transmitter off at the end of each transmission cycle—at present it is three minutes. The apparatus is being modified to allow for varying transmission periods of from 2 to 4 minutes with optional silent periods of 12, 28, or 58 minutes, the latter being selected before the radio buoy is released, through the 4-inch porthole.



NEW TYPE OF RADIO BUOY
DEVELOPED BY A SCOTTISH
FIRM.

The mast light, consisting of two lamps within a dioptric lens, is normally "steady," thereby indicating that the equipment is switched on. During the transmission period, however, the lamps are also keyed with the transmitter. The primary battery is a 12-volt lead/acid type of special design and contains no free electrolyte. With the present three-minute cycle, a working life of sixty hours can be expected from a fully charged battery.

For servicing, the radio buoy can be opened at the watertight joint in order to gain access to the transmitter unit. This unit is easily removed to enable the battery to be examined or replaced. If suitable D. C. current is available, the battery may be charged in position, the necessary switching arrangements being incorporated in the control equipment. Operation of the transmitter unit can be checked without removing it from the container.

The dimensions of the radio buoy are: over-all height is 16 ft. (container height, 4 ft.; mast height, 6 ft.; whip aerial, 6 ft.); container diameter is 18 in.; and total weight is approximately 250 pounds.

A similar radio buoy has been designed, incorporating remote radio control thereby enabling the parent vessel to use two or more buoys and start up or shut down either transmitter as required. Range of the control equipment is limited by propagation characteristics to approximately 10 to 12 miles. A smaller model is in the course of production suitable for seiners and whaling vessels.

Among the advantages and uses claimed for this new radio buoy are the following:

1. Will mark nets by emitting radio signal call to mothership.
2. Reduce search time during foul weather.
3. Whalers can attach one to harpooned whale and collector vessel can easily locate the catch.
4. Harbor entrances can be marked to "home" a fishing boat or other ship not equipped with radar.
5. Research or diving vessels can mark important locations and return in foul or foggy weather.
6. Marking far end of lines for long-line fishing.
7. Fishing dorries could each be marked with radio buoy and thus located easily in foul weather by main vessel.

Lloyds of London are insuring the radio buoys now in use in North Sea, Faroe, and Iceland waters at a rate of 3 percent per annum on the cost price of approximately \$350.

* * * * *

HUMBER PORTS RAISE MINIMUM LANDED PRICES: The Humber ports (Grimsby and Hull) on July 24 this year put into effect a new schedule of minimum prices to be paid to producers. These ports, which handle a big percentage of the fish landed in Great Britain, raised the minimum landed prices as an extra incentive to fishermen to bring in a standard quality of fish that will demand the minimum price (if a sale is effected). It is hoped that this will eliminate the necessity of selling fish for reduction purposes or for salting at a very low price, according to the July 29 issue of Fish Trades Gazette, a British fisheries periodical.

Under the new schedule, the minimum landed price for cod is 3½ cents per pound; haddock, 4 cents; all prime fish (including plaice and lemon sole), 5 cents; whiting, 2.8 cents; and cheaper varieties, 2 cents. Prior to July 24, the minimum landed prices for cod and haddock were 3 cents per pound.

This action followed the establishment of regulated sailings and landings at the ports of Grimsby and Hull for distant-water vessels in mid-July. The purpose of regulated landings and the raising of minimum prices is to keep the distant-water vessels fishing and prevent wholesale tie-ups due to the landing of an oversupply of fish or the landing of certain species of fish which are not as marketable as some of the more preferred species.



International

FAO ANNOUNCES HERRING INDUSTRY MEETING: A meeting of fisheries technologists to discuss technical problems regarding herring processing and utilization was called by the United Nations' Food and Agriculture Organization. The meeting will take place in Bergen, Norway, from September 24 to 29 this year.

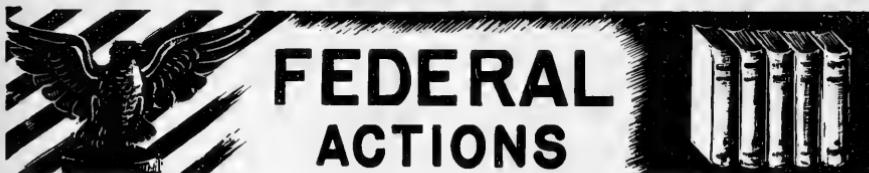
This meeting is an outcome of the FAO herring meeting held in The Hague, the Netherlands, August 1949.^{1/} One of the conclusions of the meeting last year was that in view of the existing trend towards a surplus in the herring industry, efforts should be made to find new outlets for herring products. The forthcoming meeting in Bergen will discuss all modern improvements in herring technology and utilization, which may contribute towards making processing more efficient and the products more easily available.

One of the principal subjects to be discussed at this meeting will be the possibility of preparing herring (which are considered a cheap source of protein) as an inexpensive food product suitable for the tastes of protein-deficient populations in areas such as Asia and Africa, and at a price sufficiently low to be acceptable to these populations. The purpose of the meeting is to assemble whatever information is available on experiments already carried out on this phase of the problem, and to present additional information from the areas concerned on food habits and the prices consumers can pay.

Other aspects of herring fisheries technology also will be dealt with, such as, canning, freezing, and the manufacture of herring byproducts in which many new developments have taken place.

1/SEE COMMERCIAL FISHERIES REVIEW, DECEMBER 1949, PP. 21-4.





FEDERAL ACTIONS

Department of Defense, Department of Commerce,
Department of Labor

GOVERNMENT'S POLICY ON DEFERMENT FROM MILITARY DUTY ANNOUNCED: The policies for occupational deferment of members of civilian components, including the Reserves and National Guard, in the mobilization of the Nation's armed forces were announced August 3 by the Secretary of Defense. No blanket deferments are contemplated. Each deferment will be determined on individual circumstances.

Fundamentally, deferments will be considered only for those engaged in a critical occupation necessary to a highly essential activity, and only until a satisfactory replacement is obtained.

The following are some excerpts from the Department of Defense policy on deferments of reservists possessing critical occupational skills, and portions of the Labor Department's "List of Critical Occupations" and the Commerce Department's "List of Essential Activities" which may be of interest to the fisheries and allied industries.

Department of Defense: Policies for Occupational Deferment of Reservists: The Department of Defense deferment policy for reservists is contained in a "Criteria for Delay in Call to Active Duty" which covers:

1. Members of the civilian components employed or engaged in critical civilian occupations or essential activities and who are needed for immediate utilization by the military services.
2. Members of the civilian components occupying critical key managerial jobs.

Department of Commerce: The following are the criteria and certain manufacturing and non-manufacturing industries named by the Department of Commerce in its "List of Essential Activities:"

Criteria:

1. Activities directly engaged in the production of war materials.
2. Activities necessary for the maintenance of the production of war materials included in 1 above.

3. Activities essential for the maintenance of national safety, health, and interest.

Manufacturing industries:

Major Group 20, Food and Kindred Products. Includes establishments manufacturing foods and beverages for human consumption, and certain related products such as manufactured ice, chewing gum, and prepared feeds for animals and fowls.

Major Group 22, Textile Mill Products, excluding lace goods (2292). Includes establishments engaged in preforming any of the following operations, regardless of the type of fiber used: (1) manufacturing yarn, thread, cordage, and twine;....

Major Group 26, Paper and Allied Products. Includes the manufacture of pulp.....and the manufacture of paper and paperboard into converted paper products such as coated paper, paper bags, paper boxes, cards, and envelopes.

Non-Manufacturing:

Major Group 09, Fisheries. Includes establishments primarily engaged in commercial fishing; the operation of oyster farms and the tonging and dredging of oysters; the gathering of sponges, seaweed, etc.; and the operation of fish hatcheries or fishing preserves.

Major Group 42, Trucking and Warehousing. Includes establishments furnishing local or long distance trucking, transfer, and draying services, or engaged in the storage of farm products, furniture and other household goods, or commercial goods of any nature. The operation of terminal facilities for handling freight is also included.

Major Group 50, Wholesale Trade--Merchant Wholesalers, excluding beer, wine, and distilled alcoholic beverages. Includes establishments usually known as wholesalers, merchant wholesalers, or jobbers, primarily engaged in buying, taking title to, and where customary, physically storing and handling goods, and selling the goods at wholesale, principally to retailers and industrial and commercial users. This group also includes industrial distributors, exporters, and importers, cash-and-carry wholesalers, drop shippers, wagon distributors, etc. The establishments included in this group may perform operations on the goods incidental to the wholesale trading and delivery, such as installing machinery, equipment, and fixtures; and collecting and bailing waste materials.

Separately incorporated sales subsidiaries of manufacturing and mining companies are included in this major group.

Major Group 51, Wholesale Trade, Other Than Merchant Wholesalers. Includes four general types of wholesale establishments: (1) sales branches and sales offices of manufacturing

and mining companies, (2) petroleum bulk stations, (3) agents and brokers, and (4) assemblers of farm products.

Manufacturers' sales branches frequently install machinery, equipment, or apparatus sold by them, and are sometimes engaged in leasing or renting machinery or equipment. Such activities are considered a part of the normal wholesale functions, and are included in this major group.

Major Group 54, Retail Trade--Food, including Candy, Nut and Confectionery Stores (5441). Includes retail stores primarily engaged in selling food for home preparation and consumption.

Major Group 62, Security and Commodity Brokers, Dealers, Exchanges, and Services, excluding Security Brokers and dealers (621), security and commodity exchanges (623), and services allied with the exchanges of securities or commodities (628).

Includes commodity contract brokers and dealers and security flotation companies.

In general, essential activities are identified by broad categories. The group and industry numbers shown refer to the code numbers in the Standard Industrial Classification Manual of the Executive Office of the President, Bureau of the Budget. The manual may be referred to for a detailed list of the industries included under each group.

Department of Labor: The following are certain occupations named by the Department of Labor in its "List of Critical Occupations:"

Selection of specific occupations was made on the basis of these major considerations:

- (a) The demand, in essential industries and activities for persons qualified to work in the occupations, would exceed the total supply under conditions of full mobilization.
- (b) A minimum training time of 2 years (or the equivalent in work experience) is necessary to the satisfactory performance of all the major tasks found in the occupation.
- (c) The occupation is essential to the functioning of the industries or activities in which it occurs.

Professional and Related Occupations:

Architect, marine
Bacteriologist
Biologist
Chemist - Includes: Chemist, analytical; Chemist, biological; Chemist, organic; Chemist, physical; Chemist, inorganic; Pharmacologist.

Engineer - Includes, among others, engineer, sanitary; engineer, chief, marine.
Master, ship.

Skilled Occupations:

Foreman (critical occupations only)
Lay-out man, marine
Loftsmen - Includes only: Loftsmen, marine; Mock-up assembler; etc.
Machinist - Includes, among others, Marine machinist.
Millwright
Ship rigger
Maintenance, mechanic

Definitions of these occupations have been issued by the Department of Labor.

More Detailed Information Available: The Department of Defense's policy statement on deferments, the Department of Labor's "List of Critical Occupations," and the Department of Commerce's "List of Essential Activities," may be obtained from the Office of Public Information, Department of Defense, Washington 25, D. C.



Interdepartmental Committee on Trade Agreements

SECOND SUPPLEMENTARY NOTICE ON TRADE-AGREEMENT NEGOTIATIONS:^{1/} The United States intends to undertake trade agreement negotiations at Torquay, England, beginning September 28, 1950, with the Republic of Cuba, the Interdepartmental Committee on Trade Agreements announced on August 17. This is the second notice supplementary to that published April 14, 1950. The first supplementary notice was published on May 15, 1950. The original and first supplementary notices enumerated 23 countries, other than Cuba, with which it is proposed to negotiate at Torquay.

Annexed to the second supplementary notice published August 17 is a list (the second list supplementary to that published on April 14) of products imported into the United States, on which United States concessions may be considered during the negotiations. The following additional fishery products are included (reference is made in the list to the paragraph numbers of the Tariff Act of 1930):

SCHEDULE 7. AGRICULTURAL PRODUCTS AND PROVISIONS

PARA.

720 (A) (2) FISH, SMOKED OR KIPPERED (EXCEPT FISH PACKED IN OIL OR IN OIL AND OTHER SUBSTANCES AND EXCEPT FISH PACKED IN AIR-TIGHT CONTAINERS WEIGHING WITH THEIR CONTENTS NOT MORE THAN 15 POUNDS EACH):
HERRING (EXCEPT HARD DRY-SMOKE), WHOLE OR BEHEADED, BUT NOT FURTHER ADVANCED.

721 (D) CAVIAR AND OTHER FISH ROE FOR FOOD PURPOSES (EXCEPT STURGEON), NOT BOILED OR NOT PACKED IN AIR-TIGHT CONTAINERS.

1/SEE COMMERCIAL FISHERIES REVIEW, JUNE 1950, PP. 68-9; APRIL 1950, PP. 83-6.

Articles in all three lists issued may be considered for negotiation with the Republic of Cuba and with the other countries named. The Interdepartmental Committee has also announced that, in the case of each article in the list with respect to which the corresponding product of Cuba is subject to preferential treatment, the negotiations referred to with any country other than Cuba will involve the elimination, reduction, or continuation of the preference, perhaps with an adjustment or specification of the rate applicable to the product of Cuba.



Department of State

POSTPONEMENT OF TARIFF NEGOTIATIONS^{1/} NOT TO BEST INTERESTS OF THE UNITED STATES: After carefully reviewing proposals for postponement of the tariff negotiations scheduled to begin September 28 at Torquay, England, the Department of State on September 1 announced that it would be to the best interests of the United States and of other countries not to postpone the negotiations, in which some 40 nations are expected to participate.

Accelerated defense programs in the United States and Western Europe will mean a larger total demand for goods, greater employment and strong inflationary tendencies. To the extent that tariff reductions increase the volume of imports into the United States, or decrease the costs of such imports in our domestic markets, they will contribute to restraining the inflationary pressures with which we have to deal. Moreover, tariff reductions resulting from the Torquay negotiations can be expected to contribute to counter-inflationary measures taken not only in the United States but in most of the friendly countries of the world, since the effect of such reductions will be to help hold down prices throughout the world. Tariff reductions, as made through the careful and selective procedures of the trade-agreements program, present no threat to the American economy.

Another important consideration is that successful conclusion of the Torquay negotiations can help to correct the present imbalance of our trade by increasing the dollar-earning capacity of other friendly countries. The increased defense efforts of our allies promise to increase their need for dollar goods. These needs can be met in either of two ways: by increased sales of the goods of friendly countries in dollar areas, or by increased financial assistance from the United States. Of these two means, the former is clearly the more desirable. Reduction in the need for financial aid not only reduces the burden on our own taxpayers but increases the self-reliance of the nations associated with us in the defense effort.

The Torquay negotiations promise to make an important contribution by reducing tariffs affecting trade among European countries themselves and thus facilitating intra-European trade.

The invasion of Korea has greatly increased, not lessened, the need for economic strength and unity in the nations of the free world. The Torquay conference, by widening the area of international cooperation, and deepening it in degree, will contribute to both of these objectives.

Some of those who have proposed postponement of the Torquay Conference because of the Korean situation have expressed the fear of possible injury to domestic in-

^{1/}ALSO SEE PAGE 62 OF THIS ISSUE.

dustries in which they are interested.

There is no real cause for such concern. First, the Administration has given assurances that no recommendation will be made for a reduction or binding of any United States tariff which, in the considered judgement of the interdepartmental Trade Agreements Committee, would be likely to cause or threaten serious injury to a domestic industry. The possibility of such injury is even less likely after Korea in view of the prospective high rate of United States production and employment. Second, if serious injury should nevertheless be threatened by a concession, it will be possible to withdraw or modify the concession under the "escape clause" to which all Torquay concessions will be subject.



Eighty-first Congress (Second Session)

AUGUST 1950

Listed below are public bills and resolutions introduced and referred to committees, or passed by the Eighty-First Congress (Second Session) and signed by the President, that affect in any way the fisheries and allied industries. Public bills and resolutions are mentioned under this section only when introduced and, if passed, when they are signed by the President; and reports or hearings on any of these bills also are listed.

PUBLIC BILLS AND RESOLUTIONS INTRODUCED AND REFERRED TO COMMITTEES:

Senate:

S. 3998 (Magnuson for himself, Holland, O'Conor, Pepper, and Morse) - A bill to amend chapter 61 (relating to lotteries of title 18, United States Code, to make clear that such chapter does not apply to nonprofit contests wherein prizes are awarded for the species, size, weight, or quality of fish caught by the contestant; to the Committee on the Judiciary.

S. 4021 (McCarran) - A bill to revise, consolidate, and codify the navigation laws relating to admeasurement, documentation, entry, clearance, coastwise trade, foreign trade, and United States fisheries, and for other purposes; to the Committee on the Judiciary.

S. 4066 (Murray) - A bill to provide for the installation of improvements and facilities needed for the protection, development, and utilization of Federal resources affected by dam and water reservoir projects constructed by the Federal Government, and for other purposes; to the Committee on Interior and Insular Affairs.

The following was introduced prior to August 1, 1950, and was not previously reported under this section:

S. 3957 (McMahon) - A bill to amend title 46, United States Code, section 251; to the Com-

mittee on Interstate and Foreign Commerce (July 24, 1950). (Adds to law a restriction of landings of fishery products in United States ports by foreign fishing vessels or by cargo vessels that load directly from fishing vessels at sea.)

House of Representatives:

H. R. 9308 (Kunkel) - A bill to protect the national safety and security from the consequences of price and credit inflation, to facilitate the production of goods and services necessary for the national defense, and for other purposes; to the Committee on Banking and Currency.

H. R. 9314 (Spence) - A bill to establish a system of priorities and allocations for materials and facilities, authorize the requisitioning thereof, provide financial assistance for expansion of productive capacity and supply, provide for price and wage stabilization, provide for the settlement of labor disputes, strengthen control over credit, regulate speculation on commodity exchanges, and by these measures facilitate the production of goods and services necessary for the national security, and for other purposes; to the Committee on Banking and Currency.

H. R. 9319 (Rogers) - A bill to prohibit the hoarding of foods, feeds, wearing apparel, certain containers, fertilizer and fertilizer ingredients, and other necessities; to the Committee on Banking and Currency.

H. R. 9321 (Hart) - Same as S. 4021; to the Committee on Merchant Marine and Fisheries

H. R. 9322 (Hart) - A bill to clarify and consolidate the authority to require the establishment and maintenance of aids to navigation on private structures in or over navigable waters of the United States; to the Committee on Merchant Marine and Fisheries.

H. R. 9325 (Hoffman of Michigan) - A bill to stabilize prices, prevent inflation, and control production; to the Committee on Banking and Currency.

H. R. 9343 (Hoffman of Michigan) - Same as H. R. 9325; to the Committee on Banking and Currency.

H. R. 9427 (Mansfield) - Same as S. 4066; to the Committee on Public Lands.

H. R. 9445 (Reed of N.Y.) - A bill to amend the Tariff Act of 1930 to facilitate the enforcement of certain provisions thereof prohibiting importation of products of forced labor, and for other purposes; to the Committee on Ways and Means.

H. R. 9451 (Mark of Wash.) - Same as H. R. 9445; to the Committee on Ways and Means.

H. R. 9480 (Ellsworth) - A bill to amend part I of the Interstate Commerce Act so as to make provision for an adequate reserve supply of railroad freight cars to supplement the normal supply in time of temporary shortage or national emergency; to the Committee on Interstate and Foreign Commerce.

H. R. 9521 (Lyle) - A bill to provide for an ad valorem duty on the importation of shrimp; to the Committee on Ways and Means.

H. Res. 824 (Kee) - Resolution providing for the consideration of the bill (H. R. 8945) to give effect to the convention for the establishment of an International Commission for the Scientific Investigation of Tuna, signed at Mexico City, January 25, 1949, by the United States of America and the United Mexican States, and the convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949, by the United States of America and the Republic of Costa Rica, and for other purposes; to the Committee on Rules.

H. Con. Res. 249, to correct an error in H. R. 6533, providing for U. S. aid to States in fish restoration and management projects, was adopted on August 1.

The following was introduced prior to August 1, 1950, and was not previously reported under this section:

H. R. 7637 (Herlong) - A bill to amend the Interstate Commerce Act, as amended, to

provide for the regulation of the sizes and weights of motor vehicles engaged in transportation in interstate or foreign commerce; to the Committee on Interstate and Foreign Commerce (March 9, 1950).

SIGNED BY THE PRESIDENT:

Public Law 676 (S. 2080) - An act to authorize the regulation of whaling and to give effect to the International Convention for the Regulation of Whaling signed at Washington under date of December 2, 1946, by the United States of America and certain other governments, and for other purposes. Signed August 9, 1950.

Public Law 681 (H. R. 6533) - An act to provide that the U. S. shall aid the States in fish restoration and management projects. Signed August 9, 1950.

Public Law 687 (H. J. Res. 453) - An act authorizing the President to invite the States of the Union and foreign nations to participate in the First U. S. International Trade Fair at Chicago. Signed August 12, 1950.

Public Law 700 (H. R. 9074) - An act exempting from the lottery provisions of the Criminal Code contests wherein prizes and awards are given for the species, size, weight, or quality of fish caught by the contestant. Signed August 16, 1950.

Public Law 721 (H. R. 7887) - An act granting the consent and approval of Congress to an amendment to the Atlantic States Marine Fisheries Compact, and repealing the limitation on the life of such compact. Signed August 19, 1950. (Provides that; the States consenting to this amendment, any two or more States may designate the Atlantic States Marine Fisheries Commission as a joint regulatory agency with such powers as they may jointly confer from time to time for the regulation of the fishing operations of the citizens and vessels of such designating States with respect to specific fisheries in which such States have a common interest; and repeals the limitation on the life of the compact, which was 15 years.)

Public Law 730 (H. R. 7209) - An act authorizing and directing the Secretary of the Interior to undertake continuing studies of the Atlantic Coast fish species for the purpose of developing and protecting fish resources. Signed August 25, 1950.

Public Law 734 (H. R. 6000) - An act to extend and improve the Federal old-age and survivors insurance system, and to amend the public-assistance and child-welfare provisions of the Social Security Act. Signed August 28, 1950.

CONGRESSIONAL REPORTS:

Copies of these reports available only from the committee submitting the report.

Senate Committee on Interstate and Foreign Commerce

Report No. 2029 (July 12, 1950), 3 p., printed, to accompany H. R. 6533 to provide that the United States shall aid the States in fish restoration and management projects, and for other purposes. Bill reported favorably without amendment by the Committee and passage recommended. (Discusses provisions of the bill.)

Senate Committee on Foreign Relations

Report No. 2094 (July 18, 1950), 6 p., printed, to accompany S. 2633 to give effect to the convention for the establishment of an International Commission for the Scientific Investigation of Tuna, signed at Mexico City, January 25, 1949, by the United States of America and the United Mexican States, and the convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949, by the United States of America and the Republic of Costa Rica, and for other purposes. Committee reported the bill favorably, with one amendment, and recommended passage. (Discusses the purpose and provisions of the bill; committee action; costs of the legislation; and an appendix contains excerpts from the First Session of the Eighty-first Congress Committee Report on the Two Tuna Conventions. In its conclusions, the Committee stated that "S. 2633 will permit the United States to meet its obligations under the conventions economically and effectively. The conventions provide for two international Commissions, whose function it is to study the tuna fishes and related bait fishes in the eastern Pacific about which there is a lack of basic knowledge. Both conventions are concerned, in part, with the same waters and the same species of fish. So there will be some interdependence in the findings and studies of the two Commissions. Thus it is appropriate that the Commissions having similar functions and procedures should be dealt with in a single law, and as now contemplated, the same United States Commissioners, can and should serve on both Commissions. United States Commissioners for the Costa Rican Commission were appointed by the President on June 19, 1950. Presumably they will also serve on the Mexican Commission. Upon the passage of this bill these Commissioners will be able to proceed at once with the important program for the conservation of the chief food resources of the Pacific Ocean.")

Senate Committee on the Judiciary

Report No. 2242 (August 3, 1950), 3 p. printed, to accompany H. R. 9074 to amend chapter 61 (relating to Lotteries of title 18, United States Code, to make clear that such chapter does not apply to nonprofit contests wherein prizes are awarded for the species, size, weight, or quality of fish caught by the contestant. Bill reported favorably without amendment by Committee and passage recommended. (Quotes facts presented in House Report No. 2536).

Senate Committee on Interstate and Foreign Commerce

Report No. 2364 (August 15, 1950), 3 p., printed, to accompany S. 3957 to amend title 46, United States Code, section 251. Committee reported bill favorably with amendment and recommended passage. (The report explains the legislation and gives the change in the existing law. The part added to the law is as follows: "Except as otherwise provided by treaty or convention to which the United States is a party, no foreign-flag vessel shall, whether documented as a cargo vessel or otherwise, land in a port of the United States its catch of fish taken on board such vessels on the high seas or fish products processed therefrom or any fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish or fish products.")

House Committee on Foreign Affairs

Report No. 2514 (July 12, 1950), 20 p., printed, to accompany S. 2080, authorizing the regulation of whaling and to give effect to the International Convention for the Regulation of Whaling signed at Washington under date of December 2, 1946, by the United States of America and certain other governments. Bill reported favorably without amendment by the Committee and passage recommended. (The report discusses the whaling industry, the need for conservation, the 1946 Whaling Convention, and legislation incident to United States participation and its cost. Appendixes give statistics on whaling for 1947-48 and 1948-49, and the text of the Whaling Convention. In its conclusions, the Committee stated "The cost is nominal, and for this small expenditure, the United States will have a voice in the making of whaling regulations and an opportunity to participate in whaling operations when interested parties in this country wish to undertake them.")

House Committee on Merchant Marine and Fisheries

Report No. 2934 (August 16, 1950), 2 p., printed, to accompany H. R. 9134, to amend title 46, United States Code, section 251. Bill reported favorably with amendments by the Committee and passage recommended. (Adds to the present law the following: "Except as otherwise provided by treaty or convention to which the United States is a party, no foreign-flag vessel shall, whether documented as a cargo vessel or otherwise, land in a port of the United States its catch of fish or fish products, or any fish or fish products taken on board such vessel on the high seas from a vessel engaged in fishing operations or in the processing of fish or fish products.")

House Committee on Foreign Affairs

Report No. 2996 (August 25, 1950), 14 p., with map, printed, to accompany S. 2801, a bill to

give effect to the International Convention for the Northwest Atlantic Fisheries signed at Washington under date of February 8, 1949, and for other purposes. Bill reported favorably with amendments and passage recommended by Committee. (The report gives the purpose of the legislation; a discussion of the Northwest Atlantic fishery, the need for international action, and the Convention; and the provisions and costs of the bill. The amendment states clearly that neither the bill nor

the Convention is intended to change in any way the powers the States now have over their territorial waters. In its conclusions, the Committee stated that the Northwest Atlantic fishery is an important one, not only to the New England fishery and the United States as a whole, but also to other nations of the world. The economic base of the industry is severely threatened. Unilateral action by the United States is not possible, for the fishery is an international one and requires international action.)

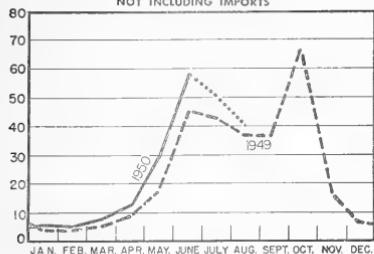
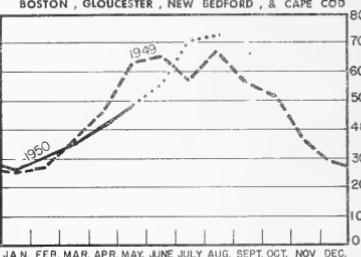
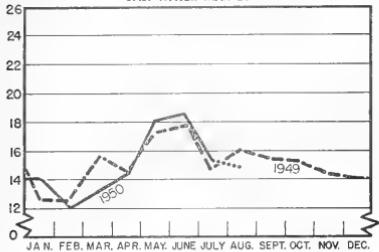
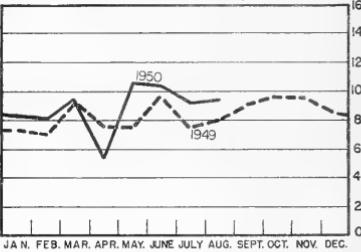
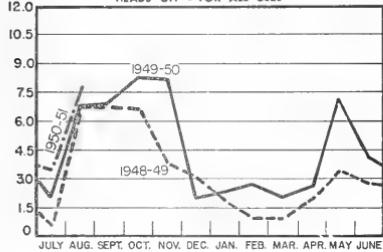
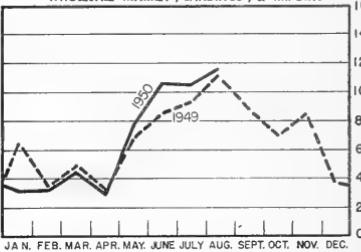


AQUATIC RESOURCES OF THE RYUKYU AREA

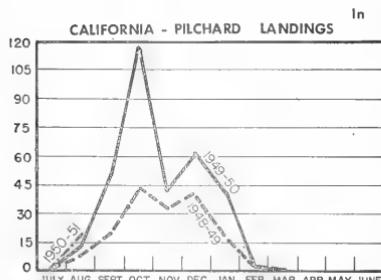
Ryukyuian Skipjack Fisheries: The skipjack (*Katsuwonus pelamis*) is by far the most important species taken in the Ryukyu area. Although the bulk of the skipjack catch obtained in the western Pacific Ocean is harvested by the Japanese during the summer and fall months in the waters directly east of Japan Proper (estimates are that these Japanese waters produce 80 percent of the total western Pacific catch), the Ryukyu area is an important fishing ground because it is a passageway for the migration of the species northward from southern waters. A large group of skipjacks proceeds from the area around the Molucca and Celebes seas along the Philippine Islands and enters Ryukyu waters. Fishermen and observers in the Ryukyu area have reported noting two types of skipjack schools: migratory schools, which are found in any part of the region although they usually are taken in the open sea over deep waters; and resident schools, which are fished principally in the areas around the small islands and over shallow banks. Aikawa (1937, pp. 17-21) states that the migratory shoals comprise about 60 percent of the total catch in the Ryukyu area and that they are distinguished from the nonmigratory forms by their relatively heavier bodies.

The presence of resident shoals permits fishing operations for the skipjack to be carried on throughout the year, except during the winter months (especially January) when weather conditions are unfavorable. The peak season for skipjack operations in the Ryukyu area occurs when the migratory schools pass through on their annual movement into Japanese waters. Generally, peak operations are from April through July, and at this time many visiting Japanese vessels come into the area from the Kyushu ports of Aburatsu, Yamakawa, Makurazaki, and other lesser places.

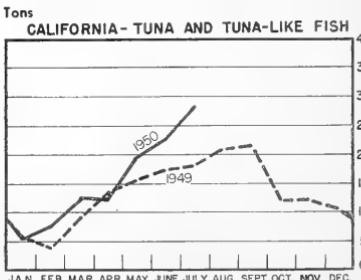
LANDINGS AND RECEIPTS

MAINE - LANDINGS
NOT INCLUDING IMPORTSMASSACHUSETTS - LANDINGS
BOSTON, GLOUCESTER, NEW BEDFORD, & CAPE CODNEW YORK CITY - RECEIPTS OF FRESH & FROZEN FISH
SALT-WATER MARKETCHICAGO - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKETGULF - SHRIMP LANDINGS
HEADS OFF - FOR ALL USESSEATTLE - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKET, LANDINGS, & IMPORTS

CALIFORNIA - PILCHARD LANDINGS

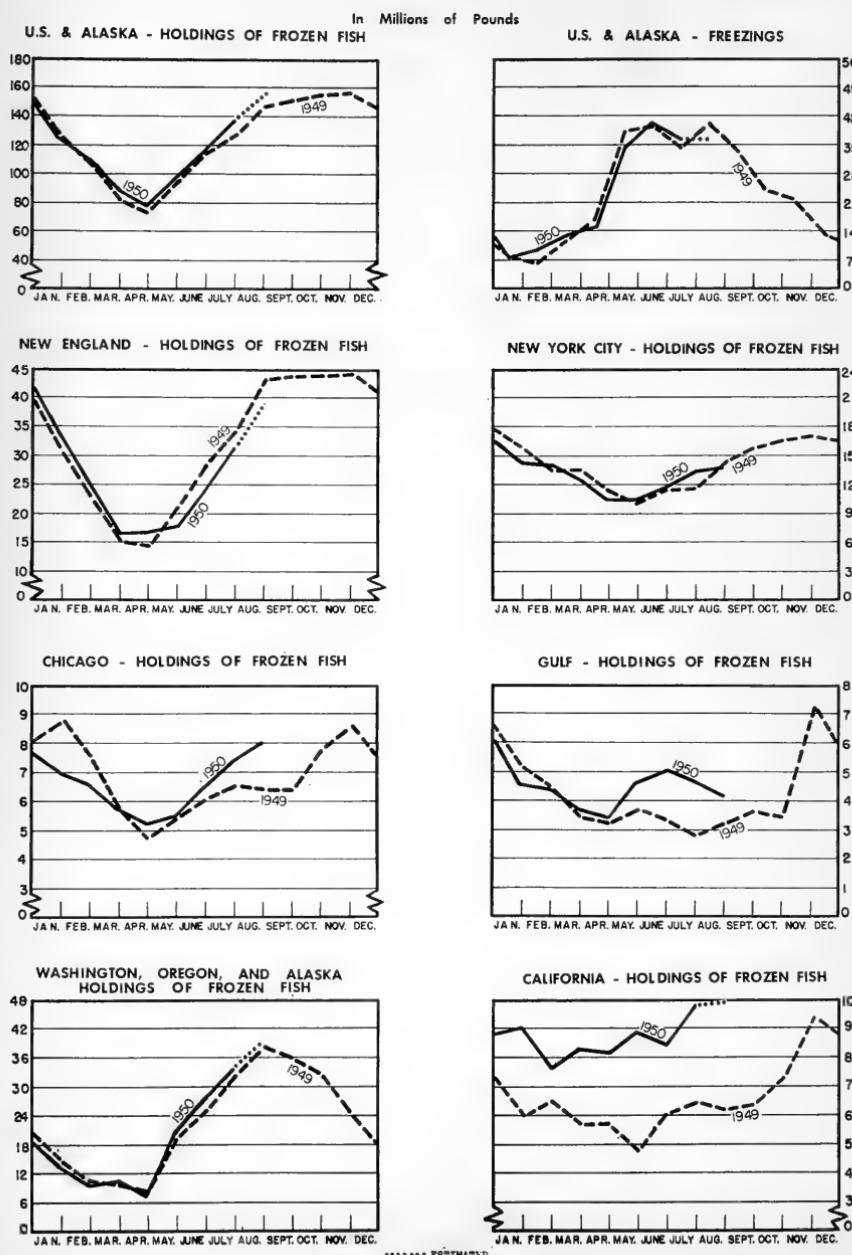


CALIFORNIA - TUNA AND TUNA-LIKE FISH

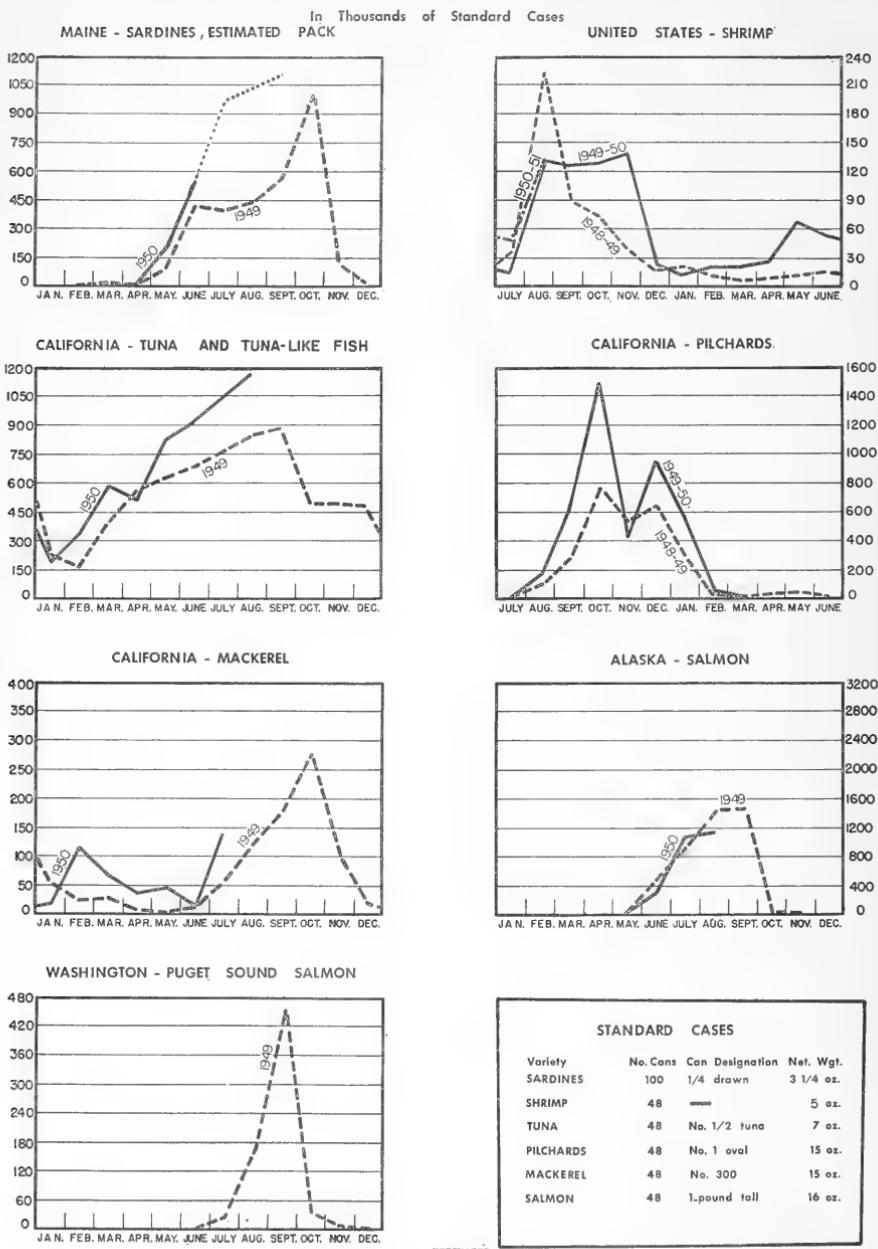


***** ESTIMATED

COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

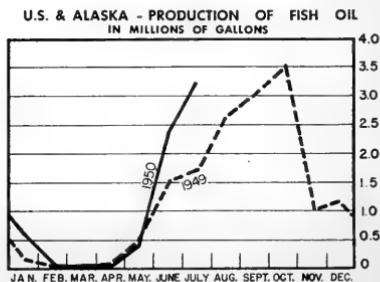
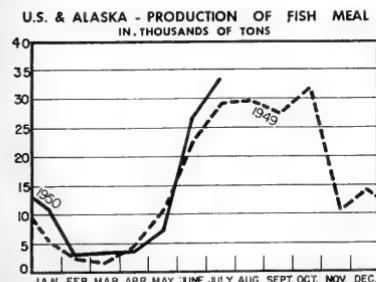
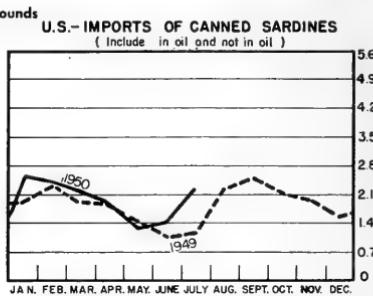
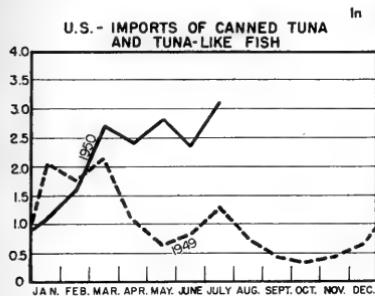
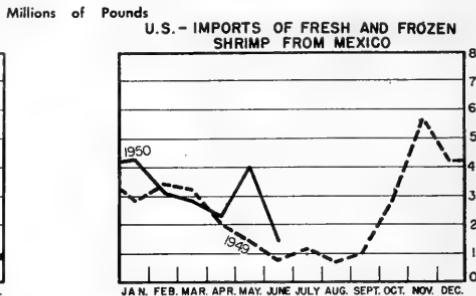
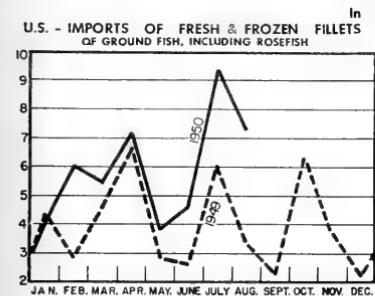
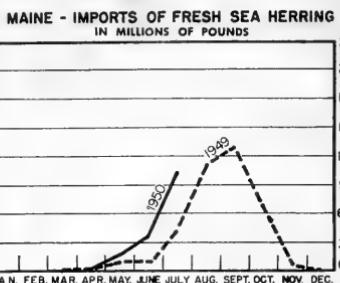
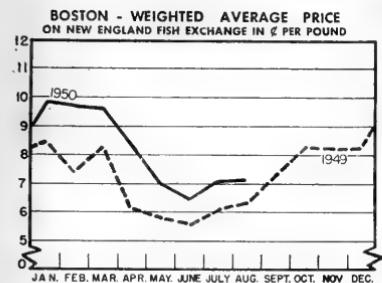


CANNED FISHERY PRODUCTS



STANDARD CASES				
Variety	No. Cans	Can Designation	Net. Wgt.	
SARDINES	100	1/4 drawn	3 1/4 oz.	
SHRIMP	48	-----	5 oz.	
TUNA	48	No. 1 1/2 tuna	7 oz.	
PILCHARDS	48	No. 1 oval	15 oz.	
MACKEREL	48	No. 300	15 oz.	
SALMON	48	1-pound toll	16 oz.	

PRICES, IMPORTS and BY-PRODUCTS



RECENT FISHERY PUBLICATIONS

Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.

FL - FISHERY LEAFLETS.

SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.

Number	Title
CFS-558	- Massachusetts Landings, March 1950, 14 p.
CFS-560	- Fish Meal and Oil, June 1950, 6 p.
CFS-562	- Massachusetts Landings, 1949 Annual Summary, 16 p.
CFS-564	- Chesapeake Fisheries, 1948 Annual Summary, 4 p.
CFS-566.	- Frozen Fish Report, August 1950, 10 p.
CFS-567	- Maine Landings, June 1950, 4 p.
CFS-569	- Texas Landings, July 1950, 4 p.
CFS-571	- Lake Fisheries, 1948 Annual Sum- mary, 7 p.
FL-379	- New England Sink Gill Net, 10 p.
FL-381	- Fisheries of France, 18 p.

Firms Canning:
SL-101 (Revised)- Salmon, 1949, 3 p.
SL-102 (Revised)- Maine Sardines (including sea herring), 1949, 1 p.
SL-102A (Revised)- California Sardines (pilchards), 1949, 1 p.
SL-103 (Revised)- Tuna and Tuna-like Fishes, 1949, 2 p.
SL-105 (Revised)- Alewives and Alewife Roe, 1949, 1 p.
SL-106 (Revised)- Shad or Shad Roe, 1949, 1 p.
SL-112 (Revised)- Shrimp, 1949, 2 p.
SL-113 (Revised)- Crabmeat, 1949, 2 p.
SL-116 (Revised)- Animal Food from Fishery Products, 1949, 1 p.
SL-118 (Revised)- Groundfish Flakes, 1949, 1 p.

Number	Title
SL-151 (Revised)- Fish Meal, Scrap, Oils, etc., 1949, 9 p.	Firms Manufacturing:
SL-152 (Revised)- Oyster and Marine ClamShell Prod- ucts, 1949, 1 p.	SL-153 (Revised)- Marine Pearl-Shell Buttons, 1949, 1 p.
SL-159 (Revised)- Fresh-water Mussel-Shell Products, 1949, 1 p.	SL-160 (Revised)- Menhaden Oil and Meal, 1949, 1 p.
Sep. 257 - Mesh Size and Construction as a Factor in Releasing Small Fish and Shrimp from Trawl Nets.	THE FOLLOWING SERVICE PUBLICATION IS FOR SALE AND IS AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Observations on the Spawning of Philippine Tuna, by Charles B. Wade; Fishery Bulletin 55 (From Fishery Bulletin of the Fish and Wildlife Service, Volume 51), 423 p., printed, 15 cents, 1950. Includes general observations and data concerning the spawning of three species of tuna, *Euthynnus yahti*, *Katsuwonus pelamis*, and *Neothunnus macropterus*, in Philippine waters as obtained by biologists of the Philippine Fishery Program of the U. S. Fish and Wildlife Service. The need for a comprehensive knowledge of the life histories of the Pacific tunas has resulted from the increased postwar exploitation of these fish.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

Advance Report on the Fisheries of Quebec, 1948, 12-102a, 10 p. (mostly statistical tables), processed, 25 cents. Fisheries Section, Industry and Merchandising Division, Dominion Bureau of Statistics, Ottawa, Canada, 1950. Reports on the sea and inland fisheries of Quebec and gives the 1948 production of fish and shellfish, the landed and marketed values, capital equipment of the fisheries, and the employees in the fisheries.

Advance Report on the Fisheries of Nova Scotia, 1948, 12-1022, 13 p. (mostly statistical tables), processed, 25 cents. Fisheries Section, Industry and Merchandising Division, Dominion Bureau of Statistics, Ottawa, Canada, 1950. Reports on the fisheries of Nova Scotia for the year 1948. Data included are quantity and value of fish landed and marketed and capital equipment and employees of the fisheries, together with comparative figures.

Australian Fisheries (A Handbook Prepared for the Second Meeting of the Indo-Pacific Council, Sydney, April 1950), edited by I. G. MacInnes, 103 p., 6 plates, illus., printed. Commonwealth Fisheries Office, Dept. of Commerce and Agriculture, Sydney, Australia, 1950. This book is divided into three parts—Part 1—Background; Part 2—The Fisheries; Part 3—Administration, Research, Development. Part 1 deals with the geographic setting of Australian fisheries, oceanography, and fauna (fish, crustaceans, mollusca, mammals, reptiles). Part 2 discusses the fishing boats; gear; methods; chief fisheries; organization and economics; marketing and distribution; and processing (freezing, smoking, canning, byproducts, and research). Part 3 reports on the administration of the fisheries, the research conducted by the Commonwealth Scientific and Industrial Research Organization of the Division of Fisheries, and the principal developments in Australian fisheries since World War II.

Eighth Report to Congress of the Economic Cooperation Administration (For the Quarter Ended March 31, 1950), 137 p., printed, 40 cents. Economic Cooperation Administration, Washington, D. C., August 1950. (For sale only by Superintendent of Documents, Washington 25, D. C.) Reports on the activities under the Economic Cooperation Act of 1948 as well as the programs of economic aid to China and to the Republic of Korea for the quarter ended March 31, 1950. Edible fishery products are specifically listed as a group in some of the tables.

Estatistica das Fescas Maritimas, 1947 (Maritime Fisheries Statistics), 124 p., printed. Comissao Central de Pescarias, Ministerio Da Marinha, Lisbon, Portugal, 1949. This publication consists of tables which cover all phases of Portuguese fishing activities in continental Portugal and the adjacent islands of the Azores and Madeira.

Included are data on the coastal sardine fishery; trawling operations off the Portuguese coast and on the high seas adjacent to the coast of Northwest Africa; cod fishing on the Grand Banks of Newfoundland and off the west coast of Greenland; and whale fishing conducted both from the continent and the Azores. Divided into four sections, the first section gives the total catch by species; the second, a breakdown of the catch according to types of fishing gear employed; the third, the whale catch; and the fourth, personnel and equipment employed in fishing operations. Also included are monthly data on the catches of the sardine and trawl fisheries and on fisheries landings in the adjacent islands.

Fortieth Biennial Report of the (California) Division of Fish and Game for the Years 1946-1948, 118 p., illus., printed. Department of Natural Resources, Sacramento, Calif. This gives a brief resume of the activities of the California Fish and Game Commission and detailed reports of the functions of the various bureaus. Among others are included reports on the Bureau of Fish Conservation and the Bureau of Marine Fisheries. The latter report discusses the various fisheries of California for 1946 and 1947 in general and specifically covers the sardine, tuna, mackerel, salmon, trawl, crab, squid, abalone, oyster, pismo clam, and bait fisheries. An appendix to the report gives marine fisheries statistics: California fisheries production, nationality of commercial fishermen, residence of licensed commercial fishermen, tuna catch, and catches of bottom fish.

The General Agreement on Tariffs and Trade (Second Supplementary Announcement), (Negotiations, Beginning September 1950 Under the Trade Agreement Act of 1934 as Amended and Extended), Department of State Publication 394a, Commercial Policy Series 131, 16 p., processed, 15 cents. Department of State, Washington, D. C., August 1950. (For sale by Superintendent of Documents, Washington 25, D. C.) This is second supplementary notice of the United States' intention to negotiate with Cuba, in addition to the 23 countries previously named. Also included is a supplementary list of products (including fishery products) to be considered at the trade-agreement negotiations to be held at Torquay, England, beginning September 28, 1950.

Nova Scotia Fisheries Yearbook 1949-50 and Directory of Fish Packers and Processors, 98 p., illus., processed. Fisheries Division, Nova Scotia Department of Trade and Industry, Halifax, Nova Scotia, Canada, 1950. Contains three articles by men in the industry ("The Fresh, Frozen and Smoked Fish Industry," "Nova Scotia's Salt Fish Industry," and "The Drying of Salt Fish"), and a review of the Nova Scotia fisheries with comparative data. The review of the fisheries includes 1949 landings (quantity and values); a general discussion of the industry; information on fishing equipment, trends in boats and

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vessels, inshore and offshore production, the in-shore fishery, the lobster fishery, the offshore fishery, the processing industry, the salt fish industry, costs of production; and a discussion of transportation, distribution, and consumption. Future prospects of the fisheries are discussed. A complete 1949 directory of fish packers and processors is also included.

Third Annual Report of the Fisheries Prices Support Board for the Year 1949-50, 13 p., printed. Fisheries Prices Support Board, Ottawa, Canada, 1950. With the exception of the purchase of Manitoba lakes frozen fish, no other species of fish were supported by the Board during the fiscal year ended March 31, 1950, according to this report. Included in this report is a summarization of the Canadian Fisheries Prices Support Act, 1944; organization of the Board; a discussion of the 1949 economic conditions in the fisheries; requests for Board action; a review of the support of prices of Manitoba lakes frozen fish; disposal of inventory; and a description of the research activities conducted by the Board.

Transactions of the American Fisheries Society, 1948 (Seventy-Eighth Annual Meeting, Atlantic City, New Jersey, September 13-15, 1948), vol. 78, 287 p., illus., printed, \$4.00. American Fisheries Society, Ann Arbor, Mich., 1950. (Order from William C. Beckman, Librarian, American Fisheries Society, Colorado Cooperative Fisheries Research Unit, Colorado A and M College, Fort Collins, Colo.) Part I consists of the papers presented at the Seventy-Eighth Annual Meeting of the Society. The following are some of the papers presented: "The Fisheries of India—Present Status and Proposed Development;" "The Reintroduction of Atlantic Salmon into Tributary Streams of Lake Ontario;" "A Nomograph for the Computation of the Growth of Fish from Scale Measurements;" "Fish-population and catch data from Minnesota Lakes;" "The American Smelt, *Osmerus mordax* (Hitchcock), of South Bay, Manitoulin Island, Lake Huron;" "Management of Florida's Fresh-water Fisheries." Part II reports on the business sessions of the Society.



THE MEXICAN FISHERIES INDUSTRY

The Pacific Coast of Mexico provides about 76 percent of the total fish taken in Mexican waters, compared with only 21 percent for the Gulf Coast. The principal west coast fishery is that for tunas, which are particularly prevalent in the high seas area surrounding the peninsula of Lower California. This fishery, however, cannot be considered Mexican, since no appreciable amounts are taken by Mexican fishermen. Vessels of California registry from the ports of San Diego and San Pedro, California, account for almost the entire take. Baracuda, yellowtail, the jackfish inhabit much the same waters as the tuna and are likewise taken almost entirely by United States fishermen.

Mexico is at present attempting to expand its tuna industry from ports on the Gulf of California. The extent of the success of this enterprise will depend on the equipment used, the continued abundance of tuna, and the degree to which Mexico can develop its local and foreign markets.

--Fishery Leaflet 339

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INFORMATION SOURCES FOR STUDENTS OF COMMERCIAL FISHERIES

Fishery Leaflet 362, Information Sources for Students of Commercial Fisheries, was recently issued. This 20-page publication is designed to show the student various means of obtaining information on the commercial fisheries of North America. It is not meant to be a complete bibliography, but only the principal contributions or bibliographies are listed.

References in this publication are listed under the following major categories: Agar; byproducts; canning; cookery; directories; employment; fish and fisheries; freezing; gear; libraries; marketing; oils, rancidity, antioxidants; salting; sanitation; smoking; spoilage; statistics; technical journals; trade journals; visual aids; and vitamin oils. Items which are recommended as basic sources are indicated.

For free copies of this leaflet write directly to the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

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Robert H. Gibbs

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